

# RADIO

THE NATIONAL TRADE MAGAZINE

FEBRUARY, 1932

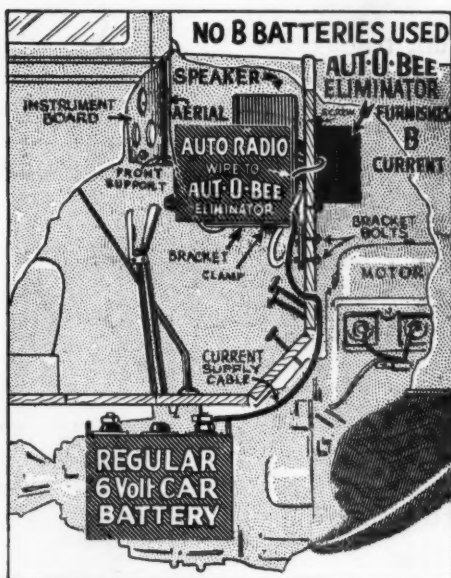
THE JOHN C. REAR  
FEB 16 1932  
BRARY  
REG.  
U. S. PAT.  
OFF.

1932's Contribution to Radio - -

## AUT-O-BEE ELIMINATOR

(PATENT PENDING)

THE MOST OUTSTANDING RADIO POWER EQUIPMENT IN YEARS. **IT** MAKES POSSIBLE THE EFFICIENT USE OF RADIO SETS IN AUTOMOBILES, MOTOR BOATS, AND AIRPLANES—ON FARMS, IN CAMPS, AND IN OTHER PLACES WHERE ELECTRICAL CURRENT IS NOT AVAILABLE, INCLUDING RADIO EQUIPPED POLICE CARS.



**\$18.50** LIST PRICE

REGULAR DEALER AND  
JOBBER DISCOUNTS

WEIGHT: LESS THAN FIVE LBS.  
SIZE: 4½ x 4½ x 3½ INCHES

NO B OR C BATTERIES  
OPERATES FOR LONG PERIODS  
OF TIME WITHOUT ATTENTION

**A**FTER six months in the laboratory stage, Motor Car Devices Co. is ready to release its new Aut-O-Bee Eliminator. Heralding a distinctly new and novel achievement in its immediate field, the Aut-O-Bee's maximum drain on the storage battery is approximately one ampere. This consumes less battery current than one head-lamp.

The storage battery does all the work—No B or C batteries. The Aut-O-Bee is not almost fool-proof. It IS fool-proof. Anyone can install it. It is simplicity itself because there are no rotating parts. Yet the cost is not much more than a set of heavy duty B batteries. Because of its compactness it may be bolted in back of the dash under the hood, beneath the floor boards or in any other convenient location of any automobile in a few minutes.

• • • **FULLY GUARANTEED** • • •

WRITE IMMEDIATELY FOR SAMPLE OR AVAILABLE TERRITORY

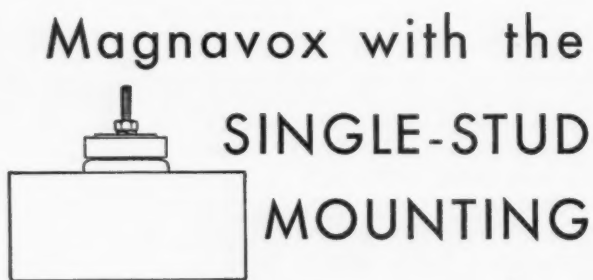
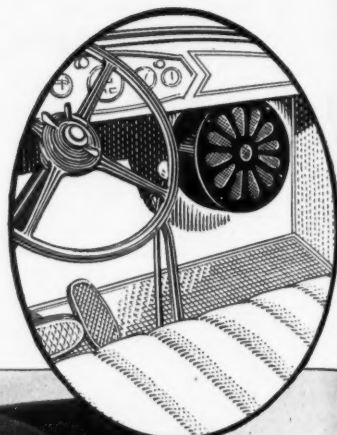
## MOTOR CAR DEVICES CO.

1455 Venice Boulevard

DRexel 6946

Los Angeles, Calif., U.S.A.

# NEWEST AND BEST IN AUTO SPEAKERS



## SINGLE-STUD MOUNTING

New tone quality, new practicality of design—these are the outstanding characteristics of these 1932-improved Magnavox Dynamic Speakers for automobile radio.

Never has such tone quality—full, true, rich—been possible with old-type speakers for automobile use. Magnavox has mastered this tone problem, the most difficult in radio, with these new Dynamic Speakers.

The *single-stud* mounting is important. This exclusive Magnavox feature renders installation easy on any dash. Bracket mountings also available. Rugged, dust-proof design makes these speakers a match for the punishment that automobile radios must stand.

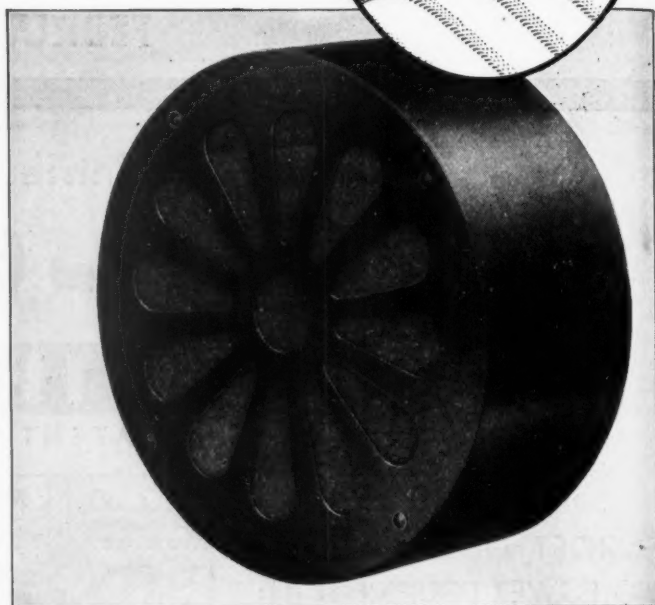
These Magnavox-quality speakers are going to solve a big problem for more than one radio manufacturer. If they cost a few cents more they're worth it! Let us send models, with complete engineering data. No obligation.

### *Magnavox Company Ltd.*

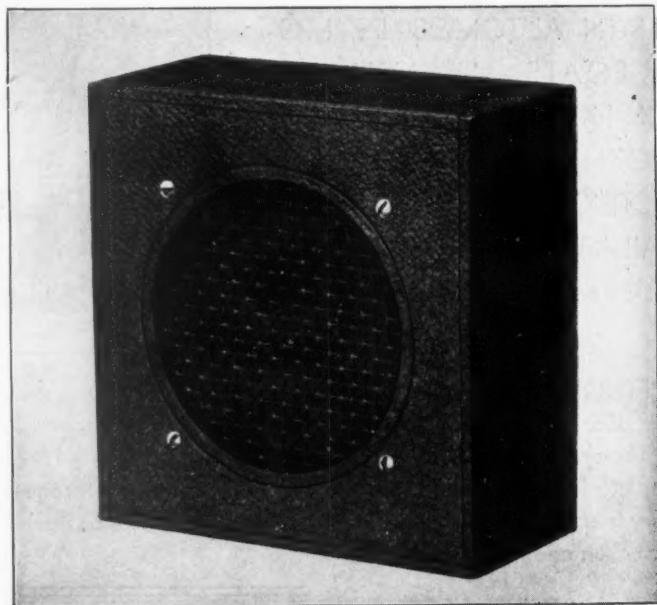
General Offices and  
Factory:  
Fort Wayne, Indiana



Subsidiaries:  
The Magnavox Company  
Electro Formation, Inc.  
Magnavox (Great Britain) Ltd.  
Magnavox (Australia) Ltd.



*Magnavox Auto Speaker in heavy, non-resonant metal housing*



*Magnavox Auto Speaker in attractive covered wood housing  
Available in two sizes with Models 40 or 50 series speaker*

# *Magnavox* SPEAKERS

THE PRODUCT OF TWENTY YEARS' PIONEER RESEARCH

"RADIO" for February, 1932. Volume 14. No. 2. 25c per copy. \$2.50 per year. Published monthly by Pacific Radio Publishing Co., Inc., Pacific Building, 821 Market St., San Francisco, Cal. P. S. Lucas, Editor. H. W. Dickow, Business Manager.  
Entered as second class matter at the Post Office at San Francisco, California, under the Act of March 3, 1879.

# a New Sensation in Value » » » this NEW LINCOLN Electric Alarm Model



Just what  
**YOU'VE**  
been  
waiting for

A Moderate  
**PRICED**  
Electric  
Alarm Clock



**LINCOLN**  
Model  
No. 481

*Illustrated in actual size*

**DEALERS**  
write for complete  
data advising  
your nearest Jobber

**JOBBER**  
write us for  
Jobbing Proposition

**LIST PRICE**

**\$2<sup>50</sup>**  
F. O. B.  
CHGO.

Electric Alarms—are now in demand by the consuming trade. Here is presented a NEW LINCOLN Alarm Model—with everything in its favor—as a smart attractive quick selling commodity—with a good margin of profit in each sale.

Has a fine Walnut toned NOVALITE moulded case—with a unique square dial. Alarm peals out on the exact set time with a pleasing tone. Designed to operate on 60 cycle—80-135 Alternating Current. No Alert Dealer—can afford to overlook this moderate priced LINCOLN ALARM. Sold with a guarantee of satisfactory performance.

## ELECTRIC CLOCK CORPORATION of AMERICA

Branch Office:  
260 Fifth Avenue  
NEW YORK CITY

Division of Fay Manufacturing Co.

General Offices:  
501 WEST MONROE STREET, CHICAGO, ILL.

Branch Offices:  
271 Seventh Street  
SAN FRANCISCO, CAL.  
340 East 4th Street  
LOS ANGELES, CAL.

COMPLETE STOCK CARRIED AT ALL BRANCH OFFICES

Tell them you saw it in RADIO





# Ride a 1900 SALES



Model "400"

**\$58<sup>95</sup>** Dual control, one operating washer mechanism and the other operating wringer. Large size agitator that does not have to be lifted out of tub to stop the washing. Full enameled 22" diameter tub, 13½ inches deep. 2½ inch balloon roll wringer, direct drive, all gears cut, automatic oiling. Six pound capacity.

**MAXIMUM  
DISCOUNTS**

**MINIMUM  
QUANTITIES**

*The* **IMPERIAL**

**\$99<sup>50</sup>** With Auto-  
matic Timer

2½ inch balloon roll wringer, eight pound capacity, direct drive, automatic timer and switch combined. Automatic oiling. Deep tub. Full skirted. Hydro-Act principle of washing. Old Ivory and sage green finish. Extremely fine discounts.



# 1900 WHIRLPOOL





# Winner

## INCREASED 40% in 1931

perfection—backed by an organization noted for finest home laundering appliances since 1898. And the profits you make on 1900 are real profits, because the mechanical perfection of 1900 washers and ironers reduces service costs close to zero.

We work shoulder to shoulder with you to help you make more sales and more money. You get the benefit of a tried and tested sales plan without cost. You get the benefit of a purchase plan that helps you finance sales.

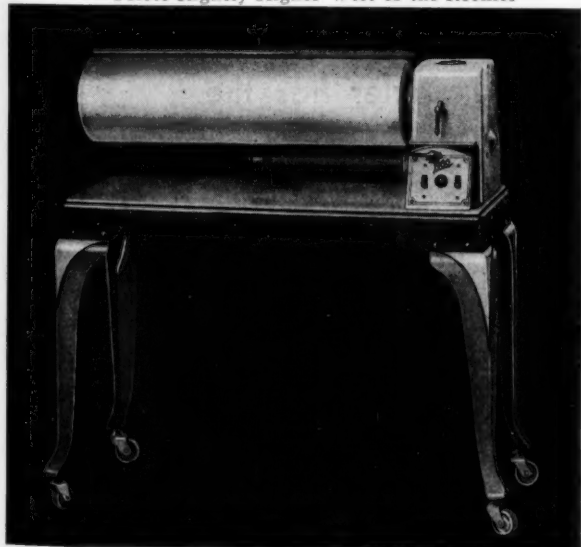
Ride a winner.

Wire or write today and get the whole story. Find out how you can sell more washers and ironers and make bigger profits with the 1900 line.

NINETEEN HUNDRED CORPORATION • Binghamton, N. Y.  
BEATTY BROS. • FERGUS, ONTARIO, CANADA

# \$58<sup>95</sup> and UP

Prices Slightly Higher West of the Rockies



*The DE LUXE*

**\$109<sup>50</sup>** With Auto-  
matic Timer  
Indestructible copper  
steel tub. Hydro-Acrt washing principle. Auto-  
matic timer and switch combined . . . safety  
wringer . . . eight pounds plus dry weight capacity.

*The IRONER*

**\$69<sup>50</sup>** Extra large shoe 26 inches by  
5 1/4. 6" diameter roll mount-  
ed on roller bearings. One-  
piece channel steel base  
mounted on steel formed legs. Quick heating chro-  
mium steel shoe. Knee, finger and pressing con-  
trols. Duo switch control. Red bull's eye indicator.  
Full open end. Automatic sealed oiling (lasts a life-  
time). All working parts hardened and ground.

# 1900 WHIRLPOOL

Tell them you saw it in RADIO

---

# The Reason for S-M Dealers' Prosperity

Silver-Marshall dealers are selling more receivers in 1931 than they were in 1929. Because—

Silver-Marshall superheterodynes are the only nationally known receivers being sold direct to dealers.

Silver-Marshall has an exclusive ten dollar system to cover trade-ins and time-payments, so that they do not come out of the dealer's pocket.

Silver-Marshall models are lower priced than any other quality set—yet the dealer can name his own profit.

Silver-Marshall makes no effort to overstock its dealers.

Silver-Marshall superheterodynes are sold to all the largest accounts in the country, yet the smallest dealer has the same merchandise to sell at the same price.

Half a million dollars has been spent in the last five months to advertise Silver-Marshall radios.

Silver-Marshall dealers are protected.

Write NOW for full information on the complete line.

6415 West 65th Street, Chicago  
Export: 41 Water Street, New York City

# SILVER-

# 9

## TUBES

# \$69<sup>95</sup>

## COMPLETE

•  
BECAUSE  
IT IS SOLD  
DIRECT  
TO  
DEALERS  
•



9-TUBE CHASSIS that will not be outperformed (Model D-18).

2 PENTODE TUBES in push-pull.

3 VARIO-MU TUBES.

SUPERHETERODYNE circuit of the most modern type.

TONE CONTROL, completely variable.

SELECTIVITY is absolute 10 kilocycle.

SENSITIVITY is from 1 to 2 microvolts per meter.

10½" DYNAMIC SPEAKER of special design.

Eveready Raytheon 4-pillar tubes.

42" CARVED WALNUT CONSOLE cabinet.

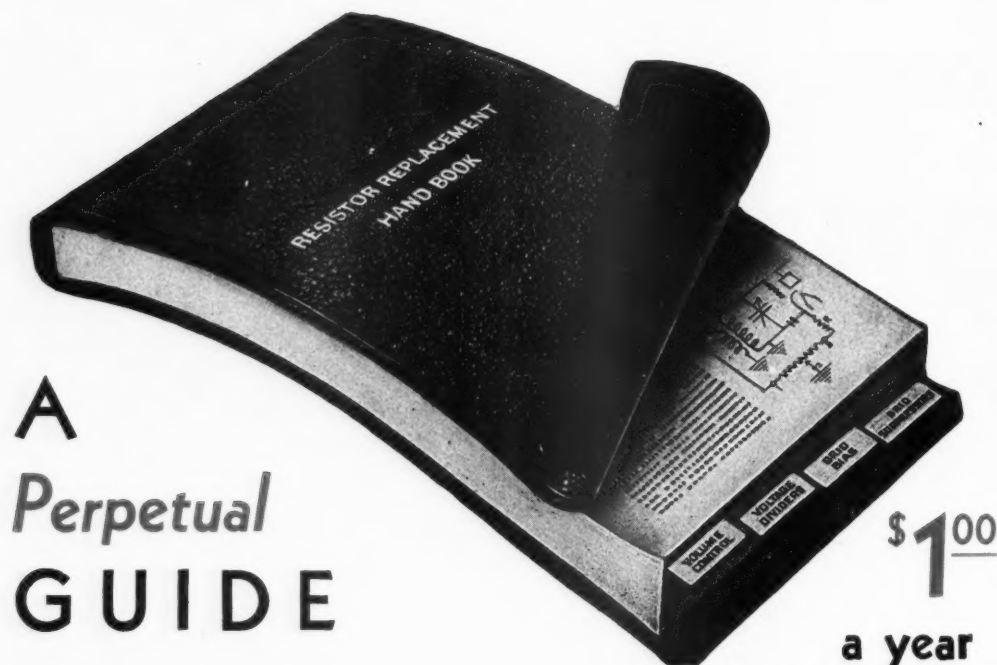
# MARSHALL

Canadian Division:  
75 Sherbourne St., Toronto

Tell them you saw it in RADIO



# RESISTOR and VOLUME CONTROL VALUES



## A Perpetual GUIDE

GENUINE DUPONT FABRIKOID FLEXIBLE COVER

### GENUINE DUPONT FABRIKOID FLEXIBLE COVER—LOOSE LEAF

Here is a book as necessary in the radio service man's kit as pliers, or a screw-driver.

A perpetual guide to resistor and volume control values, kept constantly up-to-date, by revised lists four times a year.

It shows you at a glance, exactly the value of resistor or volume control required for the job in hand, so that replacements can be made with accuracy.

Never before has such a complete, convenient guide been published for the service man.

You need it now. Use it every day. Your helpers need it. It's the biggest \$1. "tool" in the service man's kit.

### HANDY SIZE — DURABLE

Just the right size (5" x 8") to slip into the service kit, or your pocket. Loose-leaf pages so it can be kept up-to-date by supplements issued four times a year.

Flexible, tough black DuPont Fabrikoid Cover that will stand any amount of hard usage. Durable, ledger bond leaves that won't easily fray or tear from frequent use or from contact with tools.

### ACCURATE DATA ON RECEIVERS

Contains resistor circuit diagrams, useful information and resistor values used in practically all models of all popular makes of radio receivers now on the market, as well as many obsolete models still in use, which you may be called on to service.

At this writing, resistance specifications will be given for over one thousand receiver models.

### PRICED TO COVER ONLY ESTIMATED YEARLY COST

The Electrad Perpetual Resistor and Volume Control Guide is a service to the radio service man. It is they who are solving the daily problems that confront radio owners and who are called upon to keep radios in proper working condition. It is with their needs in mind that this service is being offered.

Electrad, Inc., are resistor specialists and not publishers and are offering this yearly service at a figure which will cover only the estimated cost of binder, printing, mailing and compiling of supplements.

### EVERY SERVICE MAN SHOULD HAVE A PERSONAL COPY

If you are a lone worker in the service field, send \$1.00 for your copy of this helpful guide. If other service men work for you, each should have his personal copy. In quantities of six or more, the price is 75c each—certainly an insignificant sum for such an important and helpful service.

Each subscription covers one year's service for 1932 consisting of first edition and four 1932 supplements.

### MAIL THE COUPON AT ONCE

Don't delay sending in your order. The first edition will be published and mailed about February 1st, 1932. Mail your order today, so you won't have to wait for the second edition. First come, first served. You can't afford to wait.

## MAIL THE COUPON AT ONCE

ELECTRAD, INC., 175 Varick St., New York, N. Y.

I enclose \$\_\_\_\_\_ (currency or money order) for \_\_\_\_\_ copies and supplements (as published) of the ELECTRAD PERPETUAL RESISTOR REPLACEMENT HAND BOOK (at \$1.00 per single copy; 75c each for six or more copies.)

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_

Tell them you saw it in RADIO

# ELECTRAD

INC.

MANUFACTURERS OF

VOLUME CONTROLS, VOLTAGE DIVIDERS, VITREOUS RESISTORS,  
TRUVOLT ADJUSTABLE RESISTORS, AMPLIFIERS, AND OTHER  
DEVICES FOR RADIO AND ELECTRICAL INDUSTRIES.



MAIN OFFICE

173-175 VARICK STREET  
NEW YORK

CABLE ADDRESS  
DICSPI-NEW YORK

CODES  
A.E.C. FIFTH EDITION IMP.  
BENTLEY

Dear Service Man:-

You need the Resistor Hand Book in this circular.

It quickly gives you needed information about replacement resistor and volume control values, accurate lists, actual values and circuit diagrams, showing where and how resistors and volume controls are used in radio receivers.

This guide will be kept up-to-date by revised lists and other service data, issued four times a year.

Just \$1.00 for this helpful service to the service man, for a whole year - only 75¢ each in quantities of six or more. It's a BUY you won't regret.

Electrad is happy to make it possible to place this valuable book in your service kit at a nominal yearly fee.

I hope you will act quickly and take advantage of this exceptional offer.

Cordially yours,

ELECTRAD, INC.

By

A handwritten signature in cursive script that reads "Arthur Moss".

ARTHUR MOSS,  
President

AGENTS IN ALL PRINCIPAL CITIES OF THE WORLD

Printed in U. S. A.

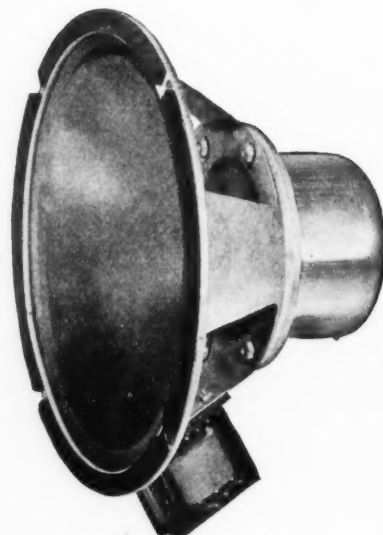
Tell them you saw it in RADIO



Infant Chassis



Midget Chassis



Juvenile Chassis

## **WRIGHT-DeCOSTER Quality is embodied in each of these New Speakers**

**W**E still maintain, and experience proves, that "a radio can be no better than its speaker".

Here's a **real** sales-building opportunity for dealers! Show your critical musical customers how they can improve their reproduction by installing a Wright-DeCoster Speaker. The results will please them so much that they will be boosters for you.

**Our prices to recognized dealers makes the Wright-DeCoster line a profitable one to handle.**

**Write for Literature, Prices and Full Information.**

### **WRIGHT-DeCOSTER, Inc.**

**2217 University Ave.**

**ST. PAUL, MINN.**

Export Dept., M. Simons & Son Co., 25 Warren Street, New York City

Cable Address, "Simonrice", New York

*The  
Speaker  
of the year*



Tell them you saw it in RADIO



# Seaboard's Amazing Offer to Dealers



"JUNIOR"—Fully Guaranteed

DIMENSIONS—11½" high—10¼" wide—6" deep.

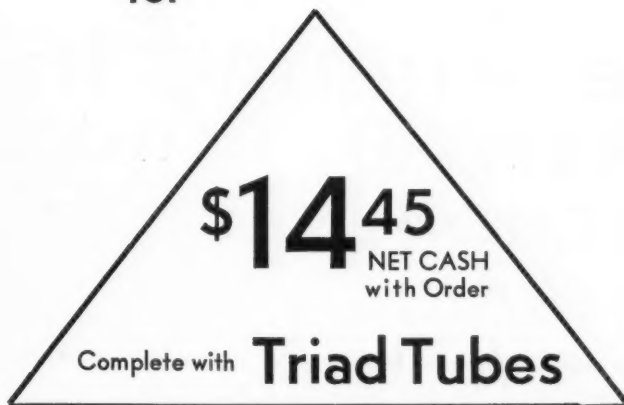
FEATURES—Pentode Tubes — Full-Dynamic Speaker —  
Tone Control — Full-Vision Dial — Highly Polished  
Walnut Finish — Electrolytic Condensers.

... and now a **5** tube receiver



"SENIOR"—Fully Guaranteed

for



## Features

MULTI-MU SCREEN GRID AND PENTODE TUBES  
NEW TYPE FULL BASS DYNAMIC SPEAKER  
TONE CONTROL  
ALL PARTS USED FOUND IN THE MOST EXPENSIVE RECEIVERS  
POSITIVELY THE FINEST "5" YOU HAVE EVER HEARD

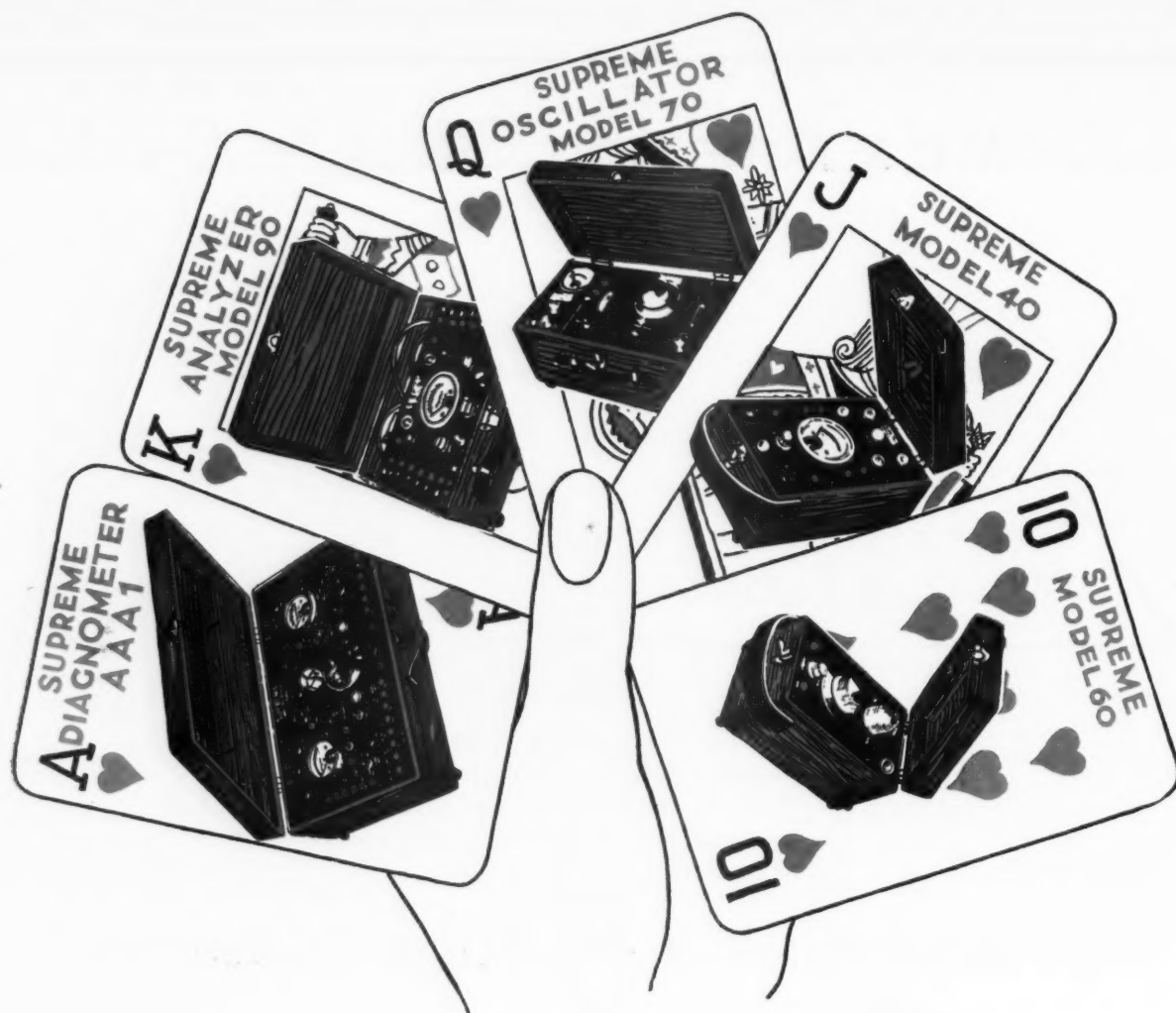
*Dealers . . . Write or Wire*

**SEABOARD MANUFACTURING CO.**

6816 SOUTH BROADWAY

LOS ANGELES, CALIF.

Tell them you saw it in RADIO



# Deal yourself the winning hand this year

## SUPREME DIAGNOMETER AAA1

**5** Ultra-modern essential testing instruments in 1 for the price of 1

The service instrument that remade radio history. You can hardly believe your eyes, that one compact instrument can do so much so quickly and so positively. Super-Diagnometer, Shielded Oscillator, Advanced Tube Tester, Ohm-Megohmmeter, Capacitor Tester—all in one. Puts you on top of every service problem in a twinkling. Ask your jobber for a demonstration and let that open your eyes to the wonders of Supreme Diagnometer AAA 1—the instrument you need to keep in step with the science of radio service and to simplify it.

Dealers' net price f.o.b. Greenwood, Miss. **\$147<sup>50</sup>**

## 1932 Supreme Service Instruments

Here's the winning hand for 1932 in the radio service world—new "Supreme" service instruments. Each a "drawing" card for the kind of business that pays best. Each a trump in its field—each an instrument that really costs you nothing, so promptly does it pay for itself and then some, in time saved—money made.

Deal yourself the winning hand in 1932 or at least one "card" that'll cash you in. Send the coupon—doesn't cost or obligate you. Get a demonstration from the good jobber who is giving himself and his customers a big hand in 1932 with new SUPREME service instruments.

## SUPREME SET ANALYZER MODEL 90

The famous one meter set tester that offers some of the unequalled features of the AAA 1 Diagnometer—and all of its own famous 1932 superiorities. Dealers' net price f.o.b. Greenwood, **\$78<sup>50</sup>** Miss.

Tell them you saw it in RADIO

## MODEL 70—SUPREME OSCILLATOR

—Thoroughly shielded, completely attenuated—output meter—high resistance ohmmeter. Dealers' net price f.o.b. Greenwood, Miss, less tubes **\$49<sup>75</sup>** and batteries

**SUPREME OUTPUT OHMMETER**.....\$30.00  
Handsome carrying case for both and accessories.....\$5.00

**MODEL 60**—handy oscillator—supreme value. Dealers' net price f.o.b. Greenwood, Miss. **\$30<sup>00</sup>**  
Portable type.....extra \$3.00

**SUPREME MODEL 40**—Counter tube checker. "Supreme by comparison". Dealers' net price f.o.b. Greenwood, Miss. **\$30<sup>00</sup>**  
Portable type.....extra \$3.00

Distributors in all principal cities

Foreign Division  
130 West 42nd Street, New York City  
Cable Address Lopreh, New York

SUPREME INSTRUMENTS CORPORATION  
429 Supreme Building, Greenwood, Miss.

Please send me full particulars on Supreme Diagnometer AAA 1. Supreme Set Analyzer Model 90. Supreme Model 60. Supreme Model 40. Supreme Model 70.

Name .....  
Address .....  
City ..... State .....  
Jobber's Name .....  
City ..... State .....

# Paramount Dealers Are Making Money

NEW LOW PRICES EFFECTIVE JANUARY 1st, 1932

Sold  
Direct to Dealers  
at a Net Price of

**\$10<sup>95</sup>**  
LESS  
TUBES

CASH WITH ORDER  
or \$12.95 Complete with  
Arcturus Tubes



PARAMOUNT  
"KEWPIE"

Retail Price  
**\$29.95**

Volume production makes this price possible. This radio is strictly quality from the cabinet to the tubes and is fully guaranteed for three months, including tubes.

## The Smallest Radio Made

Size 9<sup>3</sup>/<sub>8</sub>" High, 7<sup>1</sup>/<sub>2</sub>" Wide (inside measurements)

1932 FEATURES - - SELL ON SIGHT

### 1 Pentode Tubes

Equal to 2-245 plus 1-227. This radio, smallest in size, incorporates the new pentode tube.

### 2 Full Dynamic Speaker

Perfect tone quality.

### 3 Screen Grid Circuit

Using 2 screen grid tubes to their utmost efficiency.

### 4 Tone Control

The sales talking point of 1932. We use the new full range control.

### 5 Selectivity Plus Distance

We have reports of distance of 1500 miles.

### 6 Quality All Through

Steel chassis, cadmium plated, oversized power transformers (shielded), heavy service resistors, electrolytic, self-healing filter condenser. Cornell oversized bypass condenser and many features found only in high priced sets.

*Fully Guaranteed for Three Months*

## We Also Manufacture the Following

11 tube superheterodyne chassis with 12-inch Utah dynamic speaker, and Arcturus tubes, \$31.50 net.

10 tube superheterodyne midget, \$69.50 list, less 40-10%.

9 tube all-wave superheterodyne midget, \$79.50 list.

7 tube superheterodyne midget, \$49.95 list.

5 tube midget, full visioned dial, net \$15.95 with tubes or \$14.95 in quantities of 12.

AUTO RADIO—requires no batteries; works in home or auto; \$59.50 list.

**PROFITS:** *Our discounts are large and allow you ample margin of profit to advertise.*

Member of  
Los Angeles  
Chamber of Commerce

**LOS ANGELES RADIO MFG. CO.**  
3681 So. San Pedro Street  
Los Angeles, Calif.

Manufacturers of  
Quality Radios  
Since 1925

Tell them you saw it in RADIO



# Radiotorial Comment

By The Editor

**A** LAST minute check of a group of key radio stores reveals that January business was entirely satisfactory. Complaints are fewer than last year at this time. The outlook for 1932 business is good. Replacement-parts stores are doing a brisk business, several large new stores having been opened this month. Manufacturers of small midgets are complaining seriously about the cut-price competition which has brought the retail selling price of three lines down to less than eleven dollars, with tubes.

Two midget manufacturers closed their doors in January, by request of creditors. One concern announced a complete short wave midget set with tubes and dynamic speaker to sell at a net price of \$18.50 to the trade.

A jobber in California sold over one million Victor phonograph records in 1931. He says he will sell a million and a half in 1932.

A manufacturer who exhibited at the January Chicago Radio Show sold more than nine million dollars worth of home appliances in one week. A Chicago manufacturer announces a new electric alarm clock whose retail selling price is \$2.50.

Nineteen hundred and thirty-two will be a big year for refrigerator sales.

RCA comes out with two new midgets of the super-heterodyne type—low enough in price to scare the wits out of one prominent manufacturer who had quietly planned to surprise the trade with a low priced nine-tube super but whose price was five dollars higher than the new low priced RCA-VICTOR line. Now he's scratching his head.

But, after all, everybody still seems to be talking and advertising PRICE. A new set is announced and "price" is used in almost every line in the advertising copy. The new features which are claimed to be added to the sets are most significant. Consider what the automobile manufacturers are doing to coax the hoarded dollars out of the socks of possible buyers. Who is going to do something really different in radio in 1932? He will scoop the market.

**S**EVERAL cities have under consideration a plan to inspect midget type radio receivers, making it necessary for the dealer to have an approval seal from the Board of Fire Underwriters on each midget set sold. There is resultant consternation on the part of dealers who specialize in small radios and who will feel the brunt of the new ordinance.

A fine of \$300 is to be imposed on the dealer who sells a set without the Underwriter's plaster. Inquiry reveals that this is the only ordinance which has the punch behind it to take the cream off the milk of many a retail sale of midget sets. The usual bootlegging of unplastered approved merchandise can sometimes find its way into the home through the unscrupulous dealer whose aim in life is to cut the throat of the dealer next door.

It has been definitely stated that the Underwriters

will have a crew of spotters who will be sent into the field with cash in the pocket to buy midget sets and by this means trap the dealer who attempts to evade the law. You won't find many dealers who will risk a \$300 fine by attempting to sell unapproved sets. The Underwriter's complaint comes not from the sale of well-built midgets but from the sale of those cigar boxes full of iron and wire and poor power units which are sold to people whose ear for music is about as keen as the misguided dealer's ear for honesty.

• • •

'Tis none too soon to prepare for a new job selling or servicing television sets to receive the excellent pictures which are now on the air in a few localities, and which will be put on the air all over the country as soon as the manufacturers put cathode ray receivers on the market. For the preparation takes time. Television is a more complicated subject than radio. There are new principles to be learned and new methods to be applied.

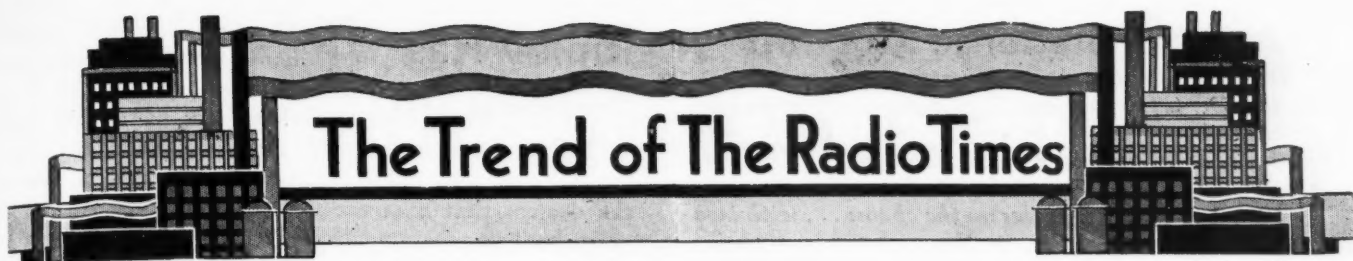
Television signals are being transmitted on the short and ultra-short wave lengths, whose reception is an art in itself. The signals are of very much shorter duration and they cover a much wider band of frequencies than do the signals which create speech and music. Their production and reproduction involves the fundamental principles of optics as well as of electrics.

These subjects, as ordinarily presented, are obscured in a mass of highly technical and mathematical terms that are completely beyond the comprehension of the man who understands the simple principles of radio. It is possible, however, for one who thoroughly understands the deep stuff to explain it in much simpler, more familiar language.

This has been done in the course of instruction by Arthur H. Halloran which was announced in January "RADIO." He was editor of this magazine for ten years following its inception and also edited a number of other electrical and scientific magazines for fifteen years thereto. Over a year ago he concluded that television would be the natural outgrowth from radio and became actively identified with this new industry. Realizing the forthcoming need for men to be employed in its ranks, he has agreed to teach the subject to a limited number of qualified radio men.

The qualifications are a serious purpose in undertaking the study and an understanding of the simple principles of trigonometry as taught in high school or in several worthy correspondence courses. It would have been much easier for the instructor to have required a knowledge of calculus, but he has succeeded in making the subject clear to one who knows the difference between the sine and the cosine of an angle. Some day he may be able to step it down to the level of us who know how to add or subtract a column of figures.

Perhaps you know some young man who can qualify. You'll be giving him a big start in life by having him get ready for the job that is ahead in television. It may come sooner than we expect.



## The Trend of The Radio Times

It is interesting to sit on the sidelines when the gymps fight among themselves in a desperate effort to sell more and more cheaper and smaller midgets. The latest is the new four-tube set, made by an unknown procrastinator of radio merchandise. Unknown to those who seek him. Known to the dealers who abuse the radio business by buying his junk. He comes out with a four-tube job, complete with tubes, but without the plaster, and sells these things for \$8.50 f. o. b. somewhere. Many a truck load of these sets has found its way into the radio stores along the Coast—and here is what happened:

**Number One**—Things started out all right. Those who first bought the sets at \$8.50 resold them for \$17.95 and made as much profit from the sale of one set as the manufacturer made on a carload.

**Number Two**—Another fellow down the street got a carload and cut the price to \$14.95. Then the dealer across the street got mad and cut the price to \$13.95. Followed by another cut to \$12.95. And then another to \$11.95. That's where the price stands today, but for one exception; the smartest of the smart dealers came out with a newspaper ad stating he would give a \$3.50 Ingersoll wrist or pocket watch free with every \$11.95 midget set sold. Which reminds us of the story of the two English butchers who occupied stores on the opposite sides of the same street in London. A sausage war was declared. Prices were cut to a penny a string. In desperation, one of the butchers, knowing that he could not cut his price below a penny a string, posted this sign on his window: "Sausages for Sale. A Penny a String. Our Sausages Are Sold to the King." Whereupon the other butcher displayed this sign: "God Save the King."

**A sharp contrast to the murmurings** of the midget makers anent the profits they didn't make in 1931 comes the report from Mr. McMurdo Silver, president of Silver-Marshall, Inc., that his company closed the year with a substantial profit. He rarely speaks of midgets in his advertising. He will sell them to you, if you insist on buying them, but he doesn't insist that you buy them. He concentrated his advertising and sales guns on the console lines and there is where the profit was made. The factory was running full blast during the peak weeks of the year and much midnight oil

was consumed in the executive and manufacturing offices. It is stated that McMurdo Silver has not yet closed any one year in his radio career with a loss. This statement does not come from Mr. Silver but from other manufacturers who are still wondering how he does it.

**THE RCA interests have objected** to the Commissioner's recommendation that PHILCO be permitted to share television experimental broadcast time with some of the stations now operating for the corporation. Until this thing is ironed out the PHILCO-FARNSWORTH picture will stay in the laboratory. But it is not probable that the RCA's request will be granted. Farnsworth is anxious to get his 500-line screen picture on the air, experimentally, because only by this means is it possible to convince the skeptics that this young genius has the television industry by the tail. We have seen the pictures. Which resulted in our decision to stay in the radio business and prepare for the coming of the next radio boom.

**"THE Huddle" is the name of a** house organ published by the RCA RADIOTRON CO. for its distributor salesmen. The current issue tells of the material change in trade distribution channels. Radiotrons have found their way into hardware stores, drug stores, automotive stores, jewelry and candy stores. "We know of one case where Radiotrons are sold in a speakeasy," says *The Huddle*.

**The Bureau of Foreign and Domestic Commerce** in Washington, D. C., says that exclusive radio stores make up 35 per cent of the total number of radio outlets. Here are the statistics:

Store	Per cent
Exclusive radio.....	35
Music .....	11
Furniture .....	10
Automotive .....	8
Department .....	8
Power Companies.....	6
Electrical Merchandise.....	5
Hardware .....	5
Contractors .....	3
Drug .....	1
General Merchandise.....	1
Jewelry .....	1
Miscellaneous .....	6
Total.....	100

RADIO FOR FEBRUARY, 1932

**A GENTLEMAN returns from** New York and tells us that he witnessed a demonstration of RCA television. The picture was brilliant, says he, and about 12x18 inches in size. Experimental broadcasts are contemplated, but as yet no plans have been made to manufacture RCA television sets on a big-scale basis. "The picture is as good as any home-movie," he says. Among other reported developments from Camden is a new combination phon-radio suitable for playing the half-hour records and with a list price just a shade below a hundred dollars.

**REFRIGERATOR salesmen of the** Westinghouse Electric and Manufacturing Company will be expected to deliver the largest volume of business ever recorded by the Company. A tremendous advertising campaign will back up the refrigerator in 1932. Schools for salesmen will be established. This year salesmen will be paid what they earn. Remuneration will be on a straight commission basis. Dealers are being asked to fight for a 10 per cent down payment, but they will be permitted to take less, with 24 instead of the recommended 12 payments. Dealers will be required to change window displays weekly. Refrigerators must be tested and serviced immediately upon receipt.

**JUST who established 1931** Radio Price Levels, and started the Auction Sale at the R. M. A. show last June is unimportant. The fact remains that an entire industrial group (with possibly one or two exceptions) followed suit is important, in that it indicates darn little individual thinking." So reads an announcement from Revere Radio Corporation of Ashland, Ohio. This manufacturer says that he is getting price levels back to where they enable manufacturer, jobber and dealer to make an honest profit in 1932. The answer, says he, is in the new combination long and short wave sets. Revere has announced such a receiver with a list price of \$99.50. Crosley has another in the \$70 price class. Even the Los Angeles midget manufacturers are coming out with them. Perhaps the midget may eventually find its lowly place in the market, instead of being touted as the best thing in radio today.



## A Common-Sense Appeal

*Here is reproduced an advertisement from a San Francisco Department store. It contains the urge to buy a second radio set for the home not on price but because of a very definite and sound reason. This type of advertising will help sell more sets.*

*With improved programs on the chains . . . with two hot-shots on the air simultaneously it is evident that the dealer can convince his present customers of the need of the second set for the home. Try this type of advertising in your community.*

### The High School Student's Dilemma

Time: 8 P. M. Scene: In thousands of homes.

Mother: "Turn on KGO. Amos 'n' Andy are on."

Dad: "O. K."

Hi School Student: "Can't we listen to Bing Crosby over KFRC?"

Dad: "Argue it out. Which shall it be?"

Mother: "Amos."

Hi School Student: "Bing."

And so on until both programs are nearly over! The simplest solution we know of is to have us install a \$29.90, 12-pound, 12-inch Remler Minuette Radio in the room of the High School Student. (Sold here on easy Budget Terms).

**Nathan-Dohrmann Co.**

SAN JOSE : SAN FRANCISCO : STOCKTON

## Ripley Has Nothing On This . . .

THE RCA-VICTOR people manufacture an elaborate combination which sells for a little less than one thousand dollars. At a jobber-dealer gathering it was suggested by one of

the dealers that a direct mail campaign be started in order to bring this de luxe high-priced instrument to the attention of those who could afford to buy one. Consequently, a thousand pieces of direct mail was sent to a highly select list of wealthy people; mostly to those who sit behind the president's desk in a bank or other large corporation. Considerable money was spent to make the campaign as dignified as possible. And here are the final results: (1) The first sale of one of these high-priced combinations was made to a janitor who paid cash for the instrument. (2) The second sale was made to a bootlegger.

No sets were sold to those whose names were on the highly selected list of presidents. It appears that the janitor found the circular in the wastebasket and promptly bought the instrument. And the bootlegger probably read the circular while waiting in the president's outer office. At any rate, two sales were made. The campaign was successful.

• • •

## But Listen To This . . .

STUDEBAKER Sales Company of Chicago will give you 10 to 100 shares of stock listed on the New York Exchange FREE with the purchase of any used car listed below."

So reads in part, a recent classified advertisement in a Chicago paper. You were given a selection of eight stocks from which to choose. One of these was R-K-O. Another, Grigsby-Grunow. Typical offerings included a Chevrolet coach and ten shares of Grigsby-Grunow stock for \$65, or a 1930 Pierce and 100 shares of R-K-O for \$1,395. Both of these stocks have enjoyed an upswing of late. R-K-O was 75 cents. Now it's \$5 and something.

## LAST MINUTE ANNOUNCEMENTS

• • • Dr. Alfred N. Goldsmith, vice-president of R. C. of A., says: "The home sound motion pictures with the sound records on the film itself, may be confidently anticipated during 1932."

• • • R. H. Manson, chief engineer of Stromberg-Carlson, recently cautioned 500 radio dealers at New York City not to expect television as a sales factor for the year 1932. "Television will not render obsolete any existing broadcast receiver," he said, explaining that vision receivers will operate on other wave channels.

• • • National Broadcasting Company chain gross income for the year 1931 is estimated at \$25,607,041, almost 17% higher than 1930. Columbia chain gross income is estimated at \$10,184,958 for 1931, or about 25% over the previous year. The highest for any individual station outside the chain systems is placed at about \$400,000.

• • • The newest radio tube to appear from one New York manufacturer is supposed to incorporate within one bulb a complete detector and audio amplifier, producing results equal to two pentode tubes or three 45 tubes.

• • • A New York broadcasting station has applied for a television permit to transmit the John L. Baird system now used extensively in England. Inventor Baird proposes to spend one-half of his time in this country if the application is acted upon favorably. The Baird inventions and system are owned entirely by English interests, according to application.

• • • Nine Canadian stations have been licensed for television transmission.

• • • Transmitting station applications for television signals for both Detroit and Cleveland applicants have been recommended after hearings.

• • • Federal Radio Commissioner Harold A. LaFount recently stated: "The commission has watched television grow from an idea to a practical science which engineers say may, within a few years, become universal."

• • • In November 1931 total employment in 43 factories producing radio sets, accessories, etc., show total employment of 25,672, which is 41% less than a year ago. The average wage, according to Government figures, show a decrease of 8.2% from November, 1930.



# New 9:20 American Bosch Car Radio Heralds Practical Automobile Radio

THE New York and Chicago Automobile shows occasion the announcement by the United American Bosch Corporation of Springfield, Mass., of a superheterodyne motor car radio receiver, designated as the "9:20," because of 20 outstanding features, nine of which are engineering developments combined for the first time in automobile radio.

One of the exceptional features is the Magmotor, an instrument for the elimination of "B" Batteries. This device is contained in a compact, metal case measuring 10" x 4 3/4" x 5 1/4". The manufacturer points out that the Magmotor is not a motor generator. There is a single armature with commutators on each end. No current from the car battery, which drives the Magmotor, is required to excite the field. A permanent magnet is employed. The manufacturer recommends the Magmotor for use with those cars in which the car battery and generator reserve is adequate for the slightly additional current required. Ball bearings, mounting in rubber cushions within its case, and precision construction, make the Magmotor noiseless in operation.

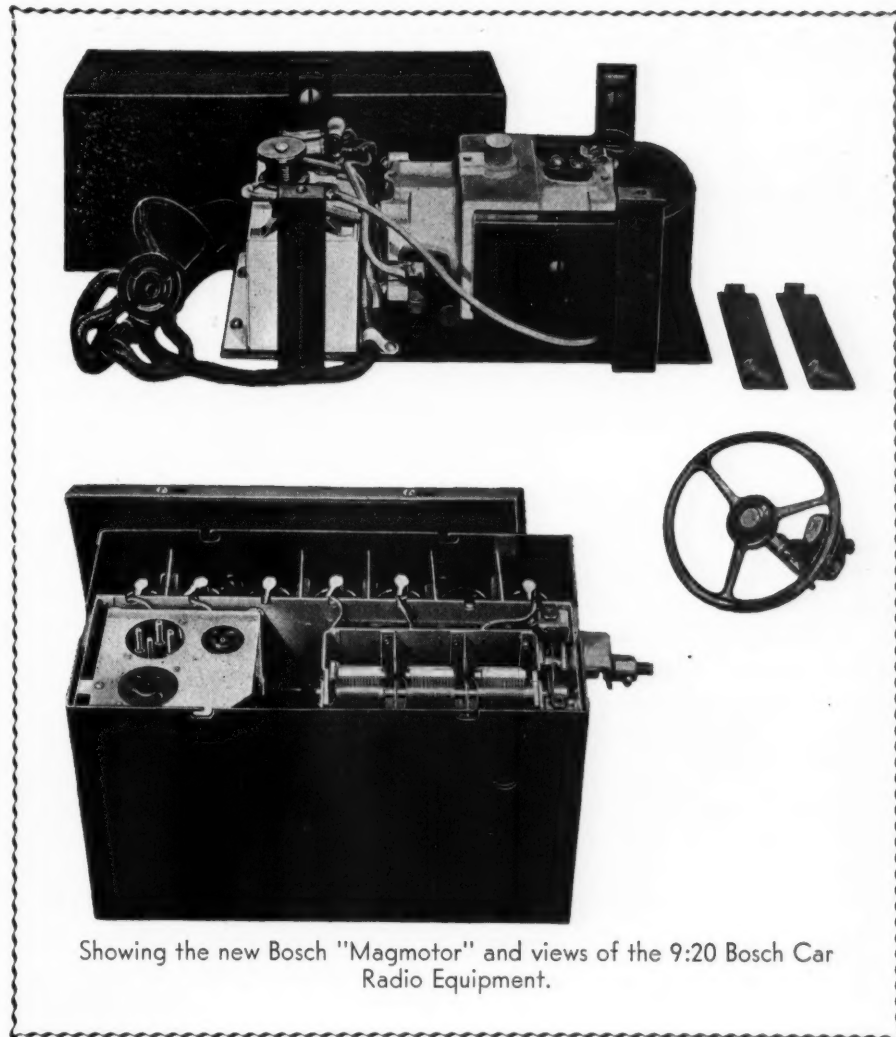
Compared with the bulk and weight of "B" batteries, four of which are required with most sets, the Magmotor is very compact indeed. Its weight is eight pounds, while the batteries weigh 55 pounds.

The new "9:20" radio can, however, be operated either with the Magmotor or 135 volts of "B" batteries. Three only heavy duty automobile type 45-volt batteries are necessary with the American Bosch "9:20."

Five times the sensitivity of the previous model American Bosch car radio is claimed in this new model through the employment of the double-detection superheterodyne principle. Seven of the new special tubes designed for automobile use are used, including one used as a diode-triode, in which one tube is made to perform the function of three ordinary tubes. Exceptional selectivity enables the listener to eliminate the unwanted nearby station in favor of the desired signal which may be coming from greater distance, yet close to the unwanted station on the dial.

Full automatic volume control regulates the signal level to counteract the changes in field strength as the car passes along the road. Fading is practically eliminated. Unlike previous motor car radio automatic volume controls, so-called, the method employed in the "9:20" in reality is a sensitivity or input control.

Another new feature of this receiver



Showing the new Bosch "Magmotor" and views of the 9:20 Bosch Car Radio Equipment.

is the resemblance of its tone quality to the tone of the better household radio. The improved electrodynamic speaker is contained in a wooden box which supports only its own weight, the frame of the speaker itself being mounted rigidly to the bulkhead of the car, thus preventing the transmission of annoying vibrations and rattles. A large field coil increases the sensitivity of this speaker.

The receiver utilizes the roof type antenna now being installed in many cars at the factory, or it may be operated with the new plate type antenna designed by American Bosch engineers to obviate the necessity for removing upholstery and top in those cars which are not antenna-equipped. The plate, suspended to the under side of the car frame parallel to the road, provides an extremely efficient signal collector, and is far enough removed from the causes of ignition interference to facilitate in quiet reception. A new transformer couples the plate to the receiver.

Control of the new "9:20" American

Bosch radio is convenient and simple through a lock on-and-off switch, station selector, Line-O-Lite dial, and a knob which permits setting signal to the desired level, which are contained in a small, neat control head mounted on the steering column.

Tubes employed are as follows:

1 type 236 as a radio amplifier.

1 type 237 as an oscillator.

1 type 236 as a first detector.

1 type 236 as an intermediate frequency amplifier.

1 type 238 as a diode-triode, which functions as a second detector, and audio amplifier, and with its subtended circuits, furnishes voltage for automatic volume control.

2 type 238 as push-pull power output.

## Prices:

The list price of the new "9:20" American Bosch Motor Car Radio is \$88.50 including speaker and tubes. List price of the antenna plate when used, \$5.00. List price of the Magmotor \$25.00

# Mexico Employs Modern Methods to Sell Radio

By A. E. MAYBRUN, Export Manager  
Transformer Corporation of America

RECOGNIZING the value of an appropriate background for displaying radio receivers, Cia Comercial "Arva," exclusive Clarion distributors in Mexico City, have designed a beautiful two-story building that serves as general office and salesroom for their American-made product.

Senor Carlos Quintinilla and his brother Pedro, two young enterprising officers of the company, are directly responsible for the huge success enjoyed by Cia Comercial "Arva." They realized that radio was not just "another" electric appliance but was an instrument serving a dual purpose; creating entertainment, and enhancing appearance of the home.

To increase sales volume it was considered of utmost importance to provide the necessary atmosphere that would assist in promoting sales. Interior decorations were secured that converted shop into home for the purpose of arousing in the mind of the customer the desire for ownership. Costly adornments distributed with good taste had their effect upon admiring potential buyers. Anything that would create greater convenience and ease for the customer was of paramount importance. Walls were decorated with expensive paintings and floors were covered with oriental rugs. Furniture consisting of comfortable over-stuffed chairs and divans was placed in special lounges to permit uninterrupted inspection of Clarion receivers. Flowers and plants added their cheerfulness and the brilliance from specially constructed chandeliers brought forth the richness of cabinet woods. A figured tile fountain illustrating the Clarion trademark (hunter and horn) was placed in the center of the general sales room.

The public is directed to this salon of beauty by a program that embraces all forms of advertising. Radio broadcasts are used daily, and newspapers together with billboards carry sales messages into nearly every home in the Mexican Republic. Their own organiza-



tion is enkindled with the fire of enthusiasm by an eight-page house organ and a splendid system of direct mail contact.

Testifying to results from this experiment, Transformer Corporation of America says the Quintinilla Brothers have the distinction of holding first place among foreign Clarion distributors. They have also achieved a record by ordering four full carloads of Clarion radios in less than three months.

Notable progress has been made by Transformer Corporation of America which is due in part to the splendid co-operation they extend to their representatives. Recently officials participated in a banquet being held in London by means of a transatlantic phone communication. The Clarion executives spoke from their offices in Chicago direct to the banquet hall.

A world-wide network of distributors has placed this comparatively new receiver in enviable rank, and again success crowns determined effort.



# NEWS

## FROM THE RMA ...and elsewhere

### New Business

FROM BELLEVILLE, Texas, has come a plea to the RMA for the following radio apparatus:

"Dear Radio Manufactures Association—I want to rite you a letter and ask you have you got these Radio Mechines in vew now as I want a Radio Mechine to locate hidden treeshures such is gold and silver under a writting guantee to find hidden treeshure. I would like for you to send me the Prices of them and a catalog to of them. Ans. soon."

### Radio Prominent in N. Y. Auto Show

MOTORCAR RADIO was a considerable feature in the annual January automobile show at New York in the Grand Central Palace. Several RMA manufacturers of motorcar receiving sets had exhibited and several automobile manufacturers had receiving sets installed in their cars and attracted much interest of the visiting crowds which were much larger than in 1931.

### Electric Home Data

THE RMA HAS BEEN ADVISED by the Bureau of Electrical Equipment of the Department of Commerce that bulletins containing detailed data on the number of electric wired homes in several states are available to sales managers and others. This data was compiled in cooperation with the National Electric Light Association and may be had on application to the Bureau of Electrical Equipment at Washington.

"Export is the brightest spot in the radio business," says "American Exporter."

Here are up-to-date facts: Of the total production of radio sets during 1929 the export markets took 4.5 per cent, in 1930 they took 6.5 per cent, and in 1931 the export field bought 15.2 per cent.

In contrast with an estimated decrease of 50 per cent in dollars of sales of radio sets in the domestic market 1931 compared with 1930, there was an increase in export sales in 1931 of 30 per cent.

### Jim Cartwright Now On His Own

"Mississippi Jim," widely known as Sales Manager for Supreme Instruments Corporation, is now in business for himself in Memphis, Tennessee. He is representing Supreme in the South and has also been appointed manufacturers' agent for Sylvania Tubes. Jim Cartwright is looking for other good lines to represent in his territory. He can be reached at 1349 Vinton, Memphis, Tennessee.

## THE KEN-RAD CORPORATION

INCORPORATED

### Manufacturers Radio Tubes

ADDRESS REPLY TO  
EXPORT DEPARTMENT

116 BROAD STREET  
NEW YORK CITY

CABLE ADDRESS: MINTHORNE

January 19, 1932.

"Radio,"

Pacific Radio Publishing Co., Inc.,  
428 Pacific Building,  
San Francisco, Calif.

Gentlemen:

In view of the fact that a great many radio manufacturers are complaining as to the export depression and the difficulties they are having in foreign markets we think that you may be interested in hearing an optimistic report concerning those markets. The sale of Ken-Rad tubes abroad has increased constantly throughout the present depression. During the last year the value of our export sales has increased approximately 1000 per cent in spite of the decline in prices. We have established suitable distributors in more than fifty different foreign markets and have secured a large percentage of the standard equipment business from radio set manufacturers in foreign countries.

We could mention a number of large foreign markets in which Ken-Rad tubes have superseded our former principal European competitor in popularity.

We expect that export business during the year 1932 will show an additional improvement over that of 1931.

Very truly yours,  
THE KEN-RAD CORPORATION.  
L. Williams, Export Manager.

### Clarion Profits Show Increase

DESPITE CHAOTIC CONDITIONS in the radio industry, and in the face of general economic distress, figures released by Transformer Corporation of America, manufacturers of Clarion Radio, show a net profit for three months ending December 31 of \$47,867.41 after deduction of all charges.

Commenting upon this exceptional progress, Ross D. Siragusa, president of Transformer Corporation of America, remarked:

"We have successfully established a world-wide distributor and dealer organization and our advancement is undoubtedly due to the fact that we are now past the pioneering stage and are maintaining a stable position in the industry. It is a pleasure to be able to report that we are among the few who have profitably manufactured and merchandised radio during the past turbulent months.

"With the release of our new Clarion well balanced line of receivers we believe our profits will materially increase, keeping us in our present enviable position."

RADIO FOR FEBRUARY, 1932

### Radio Industry Opposes Sales Tax

THAT THE PROPOSED 5 per cent sales tax on radio is discriminatory, cannot be absorbed by the industry and must be passed on to the public, will be the gist of opposition against the sales tax to be presented next Friday, January 22, by the RMA before the Ways and Means Committee of the House of Representatives. The hearing of radio interests was arranged by the RMA and will be in immediate charge of Honorable Frank D. Scott, the association's legislative counsel in Washington. President Coit of the RMA directed and Bond Geddes, executive vice-president, had charge of arranging the industry's presentation to the House Committee.

Several prominent figures of the radio industry will appear at the committee hearing. These will include President Coit of the association, Mr. A. Atwater Kent of Philadelphia, Mr. Arthur T. Murray of Springfield, Mass., president of United American Bosch Corporation, B. J. Grigsby of Chicago, president of the Grigsby-Grunow Company, and others. Vacuum tube manufacturing interests will be represented by a committee headed by Mr. B. G. Erskine of Emporium, Pa., president of the Hygrade-Sylvania Corporation.

Considerable time has been granted to the radio industry by the House Committee for presentation of facts and data in opposition to the proposed sales tax. The House Committee will be told that the radio industry would much prefer a small general sales tax than to be singled out and discriminated against by a special tax, only newly proposed against radio and automobiles.

### RMA Protests French Decree Cutting Imports

IN BEHALF of the important interests of many radio manufacturers in the French market, action against the January decree of the French Government limiting radio imports under severe quotas has been taken by the RMA. A formal protest to the State Department was made January 20, charging unfair discrimination against American radio exporters. This will be followed by other appropriate and advisable action as the American radio exports to France, according to the latest available figures, during 1930, aggregated over \$1,000,000.

According to advices to the RMA the French decree would limit importation of American radio sets to about 600 monthly. Germany's quota would be about three times and Holland's five times the American import allowance. In view of the distance and freight factors involved this apparent discrimination by France against American radio manufacturers would be even greater.



# Clavion

***smashes competition***

...7

new models, every one a leader,  
embodying every development,  
meeting every demand

9-tube ALL-WAVE  
combination

**\$79<sup>50</sup>**

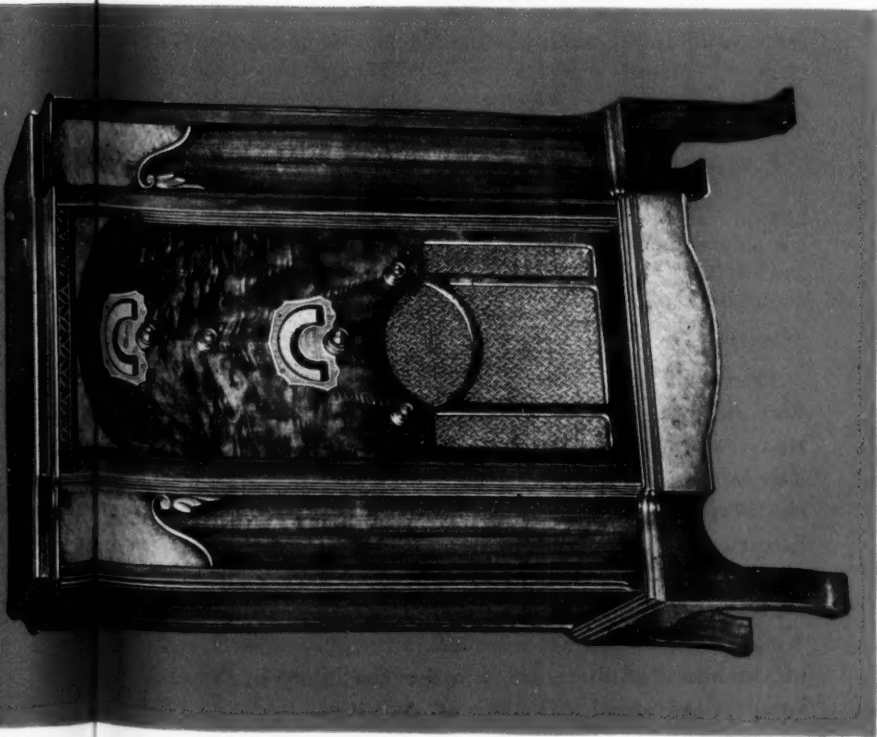
10-tube de luxe  
Console

**\$89<sup>50</sup>**





The Radio with **98% pure tone!**



**Model 140—\$79.50 complete.** Here's Clarion's big hit for 1932, the 9-tube Superheterodyne ALL-WAVE combination—its 3-tube converter assures 50% better reception of short-wave programs from all over the world, gets ships at sea, police calls at home, and airplane flashes. It's the new thrill!

**Model 160—\$89.50 complete.** The 10-tube de luxe Superheterodyne with super-size speaker, phonograph attachment, and numberless other advancements. Its handsome 6-legged cabinet alone indicates its superior quality! A new low price—a new high value!

The two smash hits of the radio season—Clarion's new 9-tube ALL-WAVE combination and the 10-tube de luxe console—are way ahead of any sets you've ever heard or seen in low price and high quality. They're proof that new achievements in radio are possible—and new thrills! And these two models are only part of Clarion's complete, all-type line designed and manufactured by TRANSFORMER CORPORATION OF AMERICA, Ogden and Keeler Avenues, Chicago, Illinois.

*Five other reasons for Clarion supremacy!*

<b>Model 100 . . \$39.95 complete</b> 6-tube mantel model	<b>Model 101 . . \$52.50 complete</b> 6-tube console
<b>Model 120 . . \$49.95 complete</b> 7-tube mantel model	<b>Model 121 . . \$67.50 complete</b> 7-tube console

**Motor Model . . at new sensational, low price**

All Superheterodynes

*Prices slightly higher west of the Rockies.*

Tell them you saw it in RADIO

# Chicago Radio Show

## One Exhibitor Sells \$9,000,000 Worth of Goods

### 42 NEW RADIO MODELS ON DISPLAY AT RADIO-ELECTRICAL SHOW

**F**ORTY-TWO new models of radio receiving sets and one new type radio tube were on display, mingled with a comprehensive variety of electrical appliances, at the Radio-Electrical Show which closed on January 24th.

Great diversity in the design, finish and styling of radio furniture was in evidence. The Majestic line, for example, is entirely new and contains ten models. They are all of the superheterodyne type, and each model contains at least one more tube than the previous line. In the ten tube receiver Majestic is using its own duo-diode tube in the detector stage and clearer reception is claimed as a result. The duo-diode tube brings the push-pull principle into the detector of the set. This was the only new tube in the Show.

Eight new models were found in the RCA-Victor booth. One of these is a short wave adaptor, carrying the range below 14 meters and continuing through the full broadcast range. In addition there are new seven and eight table models, an auto radio, and an eight tube battery set (portable). The line also includes three radio-phonograph combinations. The synchronized tone system is used throughout.

Zenith retains the seven, eight, ten and fourteen tube models, with automatic tuning obtainable with the ten and fourteen tube jobs.

United American Bosch Corp. has four new superheterodyne models, and has increased the number of tubes on the radio frequency side of other sets. There are many new and beautiful cabinet designs in this line.

The smallest radio receiver at the show was the five tube radio frequency job manufactured by Phelps Radio Company, Chicago, which speeded up work on its first units in order to exhibit at the show. It is 5 inches wide, seven inches high and 14 inches long and weighs but 15 pounds.

Although Capehart models are unchanged, their automatic record-changing device now has two speeds, instead of one.

Crosley is displayed in all of the same models that have been shown previously, but the line has been increased to contain a total of twenty models. The additions include a midget and three console models. The superheterodyne circuit and the tuned radio frequency circuit are employed in the Crosley line.

In Echophone's line there are eight models, the new ones being six tube "supers".

Radio International Company, of Chicago, which exhibited in its first exposition, displayed a four tube superheterodyne mantel clock model.

Universal Auto Radio had three models. They are 5, 6 and 7 tube jobs, with double shielding, and have a "B" eliminator, optional with the installation. The company has announced plans for an eight tube superheterodyne model for automobiles.

The price range for the new receivers and combinations shown on the Coliseum floor is from \$27.50 to \$1,095.00.



Speakers at the National Radio Rally of the Chicago Show. Powell Crosley, Jr., is in the center of the back row. In the front row, at left, is Lewis Ruthenberg, president of Copeland. Paul B. Klugh, vice-president of Zenith is at the far right end of the front row.

### CHICAGO RADIO SHOW HIGHLIGHTS

"A BUSINESS show, pure and simple", was the consensus of opinion of the exhibitors in the 10th Annual Chicago Radio-Electrical Show. Show visitors and trade alike were convinced that business is to be had.

*What convinced the refrigerator manufacturers of interest in their particular products was the fact that so many visitors carried folding rules with which to measure the outside dimensions of refrigerators, to see if they would fit into a particular spot in their kitchens.*

A striking demonstration of the saleability of a new appliance was found in the booth of the Whitewood Corporation, Detroit. The product was "Emle", the electrical maid, which not only washes and irons the clothes, but washes the dishes and performs some fourteen other household tasks, and then disappears under the kitchen sink.

Fred Wiebe, St. Louis, Mo., of the Brown Supply Co., was elected president of the National Federation of Radio and Electrical Associations; and James Aitken, Toledo, Ohio, of the Aitken Radio Corp., president of the National Association of Radio, Refrigeration and Electrical Distributors.

These two associations supercede the National Federation of Radio Associations and the Radio Wholesalers Association. The names were officially changed by action of the board of directors in order that they might encompass the broadened scope of activities.



# New Breaks Previous Records

## Experimental Television Sets Introduced

At the conclusion of the exposition George K. Parsons, president, had distributor applications for a total of 70,000 units at a total consumer price of \$9,800,000.

THE suitability of exhibiting electrical appliances and radios together received the approval of trade and public alike. One Chicago newspaper called the show the "wedding of appliances and radio", an idea to which thousands of dealers and jobbers subscribed.

Many radio companies exhibited complete new lines at the show, and without exception there were new models found in all booths. A check up revealed some 42 new sets, varying in price from \$27.50 to \$1,095.00.

Newcomers to the ranks of set manufacturers were the Phelps Radio Corporation, and Radio International, Inc., both of Chicago. As a result of business contracted at the show, Don J. Phelps, president of the former corporation, said that production, three times greater than contemplated, had to be scheduled.



**De Luxe Corner of the Chicago Show.**  
Capehart display introduces new luxurious line of automatics. The long playing records can now be used on the Capehart combinations.

### Attendance Exceeds Last Show

A TOTAL of 215,491 persons attended the 10th Annual Chicago Radio-Electrical Show at the Coliseum, it was announced at the close of the exposition by G. Clayton Irwin, Jr., General Manager. This figure exceeds by 21,101 the number that attended the last show.

This figure reveals an even greater increase in attendance than at the New York show, in September, when 6,000 more visited the show than in 1930.

## Statements From Exhibitors

### Whitewood Corporation

"A market for 70,000 units, involving a list price total of \$9,800,000 bolstered by jobbers' signatures, was revealed for our Emle (electro-mechanical labor eliminator) during the

seven days of the Radio-Electrical Show in the Coliseum at Chicago."

This statement was made by George K. Parsons, vice-president and general manager of the Whitewood Corporation, Detroit, and inventor of the machine which performs fifteen household duties and folds up under the kitchen sink when not in use.

### Capehart

"The show was of real benefit to us, even though our units range well above \$1000 in price," said M. E. Thiede, of the Capehart Corporation, builders of de luxe radio-phonograph combinations, equipped with record changing devices of their own patent. "The fact that the show crowds so filled our display space that it was often next to impossible for our demonstrators to move from one unit to another was most satisfying."

"We were amazed, not only by the large attendance at the show, but at the percentage of the throng which evidenced a desire for the higher priced merchandise."

### Western Television Corporation

A TOTAL of 27 television broadcasting transmitters for amateurs were sold during the Chicago Radio-Electrical Show by Western Television Corporation, according to Clem F. Wade, president.

Western Television introduced at the exposition a specially constructed television broadcasting set for use of amateurs who now hold Federal Radio Licenses.

"We feel especially elated at the acceptance of this new product by the amateurs," stated Mr. Wade. "With the amateurs exchanging pictures with each other as they do signals and voice at the present time, the interest in television will grow many fold within a short space of time."

### Echophone

"I believe the showing of radio sets and electrical appliances together in this exposition was of tremendous benefit to both," said F. W. Hill, factory sales manager for the Echophone Radio Mfg. Co., Ltd. "Television was certainly effective in drawing hundreds of thousands of visitors to see the merchandise that the exhibitors displayed for their inspection. Both dealer and public interest in our product were such that we are certainly glad we participated in the show."

(Continued on next page)

### National Organizations Change Names in Accordance With Broadened Scope of Activities

THREE national conventions were held during the show week as a part of the exposition. They were conventions of the Radio Wholesalers Association, the National Federation of Radio Associations and the Institute of Radio Service Men.

By action of the boards of directors of the first two associations they are now known as the National Association of Radio, Refrigeration and Electrical Distributors, and National Federation of Radio and Electrical Associations.

These two associations and the Institute of Radio Service Men will hold their next national meetings in New York City concurrent with and as a part of the 9th annual Radio-Electrical World's Fair in September.

## Grigsby-Grunow

"The 1932 Trade and Public Show was of vastly more importance to us, commercially, than was the show given at the Coliseum under the same management in 1930," said J. J. Kelsey, of the Grigsby-Grunow Company sales forces. There has not been so much dealer enthusiasm in evidence since 1928. The show is a whiz. We are not only intensely enthusiastic over the situation, but we are busy, our factory is busy and, naturally, we are all happy over the course events have taken. Just say for me that I think it is one grand show, and that the crowds are not only bigger than we expected them to be, but they are paying more attention to what they see in the exhibits. The exposition was undoubtedly of real benefit to both the radio and electrical industries."

◆ ◆ ◆

## Crosley

J. J. Reilly, in charge of Crosley sales in Chicago, and in charge of the exhibit for Crosley Radio Corp., Cincinnati, which included radio sets and the new Crosley refrigerators said: "This show has developed for us many new and good prospects and we are glad to have been here. The attendance at our booth increased daily throughout the week and the interest shown was most marked."

"From the merchandising standpoint the show has been better than last year. The newness of our refrigerator and its low price supply two reasons for the wide interest in it."

"During show week our company held an enthusiastic distributor's meeting, in Chicago, after which the price of the new refrigerator was posted in our exhibit booth."

◆ ◆ ◆

## Gibson Refrigerator Secures Many Distributors and Sells \$90,000.00 Worth of Business

THE Gibson Refrigerator Company concentrated on the Chicago Radio-Electrical Show as the best merchandising medium to close with distributors and succeeded so well that C. J. Gibson, president, and Frank Gibson, Jr., vice-president, returned to Greenville, Mich., early to see what could be done about increased production.

The exhibit was manned by: W. R. Marshall, advertising and Sales Promotion manager; F. A. Delano, General Sales Manager; L. V. Whitney, president, L. V. Whitney, Inc., Chicago distributor; P. W. Peck, southern district manager; Howard Seldomridge, middle west district manager; George Farrin, middle west district manager; H. M. Pauley, special field representative.

A total of \$90,000 wholesaler business was done by Gibson during the show, according to Mr. Marshall. The company also launched one of its advertising campaigns during the show with travel ads on one hundred big trucks in Chicago and posters on the elevated platforms. These were tied in with the show's promotion.

Ten thousand huge trucks are now under contract to the Gibson company, and just as soon as the mechanics can be completed a big Gibson poster 43" x 63" will appear on each of them, straight across the continent.

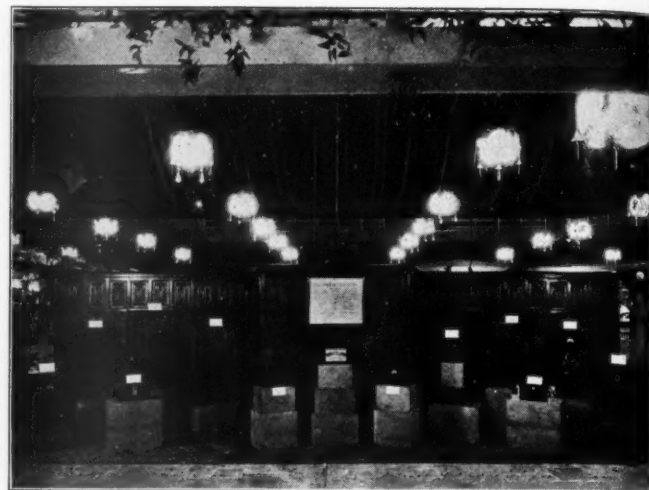
◆ ◆ ◆

## Leonard Refrigerator

THIS has been a splendid radio and appliance exposition, and it has been a fine television show, but all in our organization agree it has been a gorgeous refrigerator show," was the way C. S. Tay, sales manager of the Wiswell Radio Company, which staffed the Leonard Refrigerator exhibit, expressed himself.

"Not in five years," continued Mr. Tay, "and I have appeared in all of the ten Chicago Radio-Electrical Shows that have been held in the Coliseum has there been such a vast amount of dealer interest; and in dealer interest there is a vast difference from dealer curiosity."

~~~~~



This impressive exhibit, devoted exclusively to the new type air cell battery operated receivers at the Chicago Radio and Electrical Show the week of January 18, illustrates the rapid growth of the "back to the farm" movement in the radio industry. Although air cell sets were introduced only a year ago 21 manufacturers are now making them, of which 12 are represented in the above exhibit, some of them showing both midget and console types.

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## Announce New York Radio-Electrical World's Fair in September and 11th Annual Chicago Radio-Electrical Show in January, 1933

AT THE same time the attendance figures were released, U. J. Herrmann, Managing Director, and Mr. Irwin, announced the 1932 Radio-Electrical World's Fair would be held in New York City in September, and that the 11th Annual Chicago Radio-Electrical Show would be held in January, 1933.

◆ ◆ ◆

## Success of Show Substantiated Advance Predictions by Messrs. Herrmann and Irwin

THE increase in the consumer attendance was accompanied by a sharp increase in the number of jobbers and dealers present and bespoke their approval of January as the time to hold a trade show. There was not an important jobbing center in the United States that was not represented by one or more wholesalers.

Foreign merchants came to the show in large numbers, several being accompanied by interpreters. New York exporters also came and placed large orders.

The success of the show from a business point of view was exceptional and bore out the advance statements of Messrs. Herrmann and Irwin that a January combined trade and public show would benefit the radio and electrical appliance industries, including factories, distributors and dealers.



# CLARION

## PRESENTS 1932 MODELS

+ + +

Ross D. Siragusa, president of Transformer Corporation of America, dispelled the gloom of 1931, chased smiles across the faces of factory representatives and exploded a bombshell of enthusiasm when he presented to his district managers the line that CLARION offers for 1932. Delegates from every state in the Union applauded as each model made its bow, and voiced exclamations of praise for the cabinet creations of a master designer. Everything was there—six, seven, ten tube chassis; midgets, consoles, all wave, yes, even motor radio. It was a merry party and no wonder, the line was complete with every advantage known to radio science, at prices that, well, even you will wax enthusiastic.

Here's the line-up:

Model 100, a six tube super-heterodyne that packs all of CLARION'S 98% pure tone into a handsome mantel type cabinet of great beauty. It's anybody's for \$39.95, complete.

Model 120, seven tube super-heterodyne mantel model with variable tone control, striking cabinet work, rigid construction and correct acoustics. Priced at \$49.95.

Model 101, six tube super-heterodyne console, smart in appearance and performance, beautiful grille with cathedral effect. Retail for \$52.50.

Model 121, a console, beautifully carved, with a seven tube super-heterodyne chassis. Price of \$67.50.

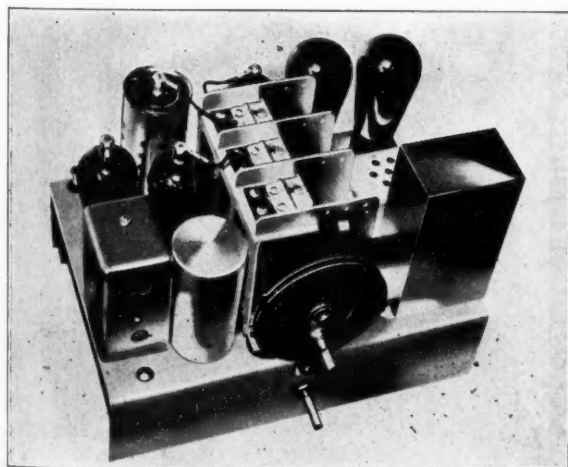
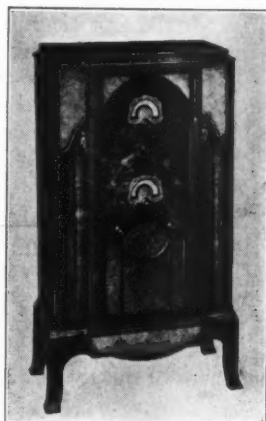
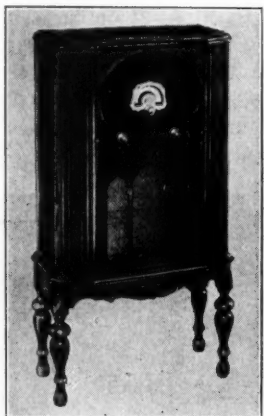
Model 140, CLARION'S nine tube super-heterodyne All Wave combination, that it is said will bring radio's newest thrill. It will be advertised as the CLARION "round-the-world air cruise" and ships at sea, The Vatican, Paris, Australia, South America, and the police calls right at home, are to be yours for the asking.

Mr. E. J. Doyle, chief engineer for Transformer Corporation of America, explained that its three tube converter is designed to eliminate interference common with present day short wave apparatus, and it offers something quite definite in the way of a thrill. Its cabinet of butt walnut, bird's-eye maple and oriental woods, features the graceful and popular French legs. Receiver complete sells for \$79.50.

Model 160, ten tube de luxe, super-heterodyne console, with automatic volume control, super-sensitive selective feature, super-size speaker, phonograph attachment, and a dozen other brilliant new features. A set worthy of its six legged cabinet. Price \$89.50.

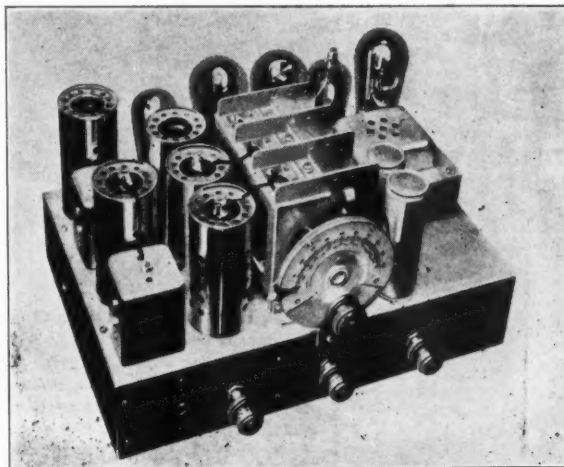
The motor radio was presented, but secrecy remains as to its price. Mr. Siragusa remarked that it would startle his organization, and rather than end the meeting with heart attacks refrained from mentioning price until each representative had returned to his territory at which time a letter would follow giving complete details.

In the opinion of a number of CLARION'S outstanding district managers, including George E. Anderson of Dallas, Texas, the convention was CLARION'S most successful, and undoubtedly represented their greatest contribution to the trade.



Here are shown  
the chassis of the  
new Clarion  
Models.

At the left is the  
6 tube chassis. The  
illustration at the  
right shows the  
new 7 tube chassis  
for the de luxe  
Clarion sets.





# Crosley Introduces Refrigeration

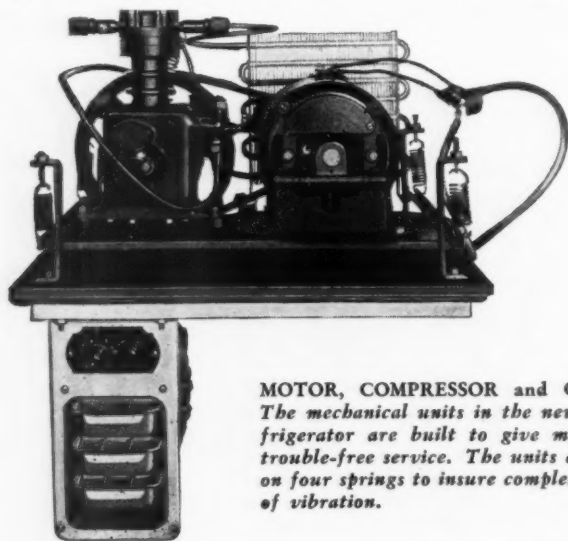
## \$99.50 . . . and \$139.50 Are the Prices

**S**TRANGE as it may seem, the sensation of the recent Chicago Radio Show proved not to be some recent striking development in radio engineering, but rather was found in a product having little or nothing to do with radio, for the hit of the show unquestionably was the new Crosley Electric Refrigerator.

Dealers and distributors who were in attendance were literally swept off their feet by the surprise announcement of Crosley Radio Corporation officials that their organization had definitely entered the field of electric refrigerator manufacture and that, as an even greater surprise, production was already well underway on the new Crosley Electric Refrigerator which represents by far the greatest electric refrigerator value ever offered in the history of the industry.

**I**T WAS THE CONSENSUS among the thousands of distributors and dealers attending the show, that the new Crosley unit marked another milestone in the progress of this relatively new industry in that the Crosley Radio Corporation now brings for the first time to the consuming public an electric refrigerator which, while possessing every feature to commend it as being the equal of similar units now available, has the added advantage of extreme low cost.

The revolutionary effect this new unit will have on the electric refrigerator industry lies in the fact that now for the first time modern electric refrigeration will be brought into the homes of hundreds of thousands of "average" families whose modest means have prevented their enjoyment of this modern household appliance.



**MOTOR, COMPRESSOR and CONDENSER**  
The mechanical units in the new Crosley refrigerator are built to give many years of trouble-free service. The units are suspended on four springs to insure complete elimination of vibration.

Those present conceded that it was truly a dramatic moment when Powel Crosley, Jr., stood before the assembled dealers and distributors from all parts of the United States and Canada and made his sensational statement that for the first time in the history of electric refrigeration, a home unit of four and a half net cubic feet of food storage space is now available to the public at a price under one hundred dollars.

**C**ROSLEY'S ANNOUNCEMENT that the Crosley Radio Corporation was prepared to manufacture, and in fact already was producing, this four and a half cubic-foot unit to retail for the amazingly low price of \$99.50, and another larger unit of five and a half cubic feet of storage space for but \$139.50, was greeted by one of the most enthusiastic ovations in the history of the Chicago Radio Show, as dealers recognized in it a definite step towards the revival of prosperity.

It was the general opinion that Crosley's statement indicated that this pioneering radio manufacturer intends to perform the same service for the American public in the field of electric refrigeration that he has already so successfully accomplished in the field of radio—that is, he is to bring electric refrigeration out

of the luxury class and into the reach of the most modest family budget.

**B**Y FAR THE LOWEST priced unit yet produced by the industry, the new Crosley model C-12, selling for \$99.50, is a spaciouly designed refrigerator providing four and a half cubic feet of food storage space and containing nine square feet of shelf space. Its outside dimensions are: 57 $\frac{3}{4}$  inches high, 25 $\frac{3}{4}$  inches wide, and 20 $\frac{3}{4}$  inches deep. The unit is housed in a cabinet of exceptionally pleasing design of white lacquered steel exterior, white porcelain interior, broom-high legs, and equipped throughout with stamped brass chromium plated hardware.

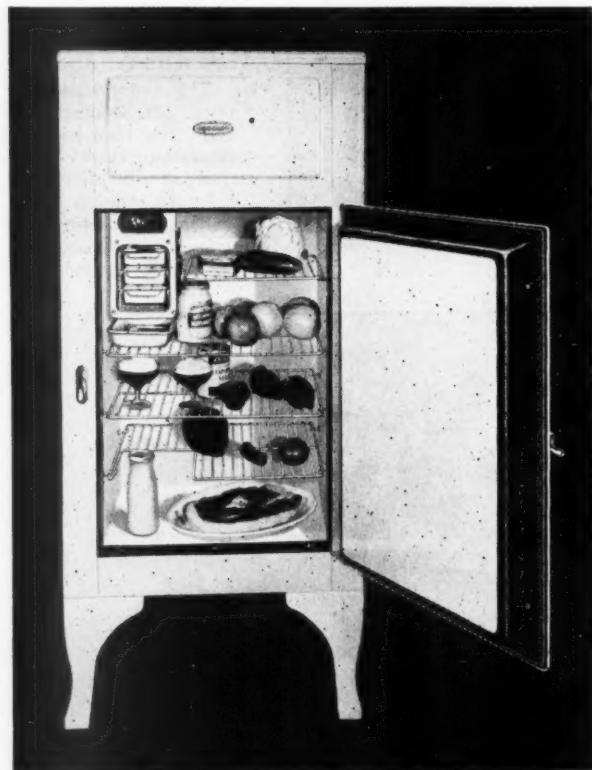
Said to possess the finest insulation facilities of any home refrigerator, the new Crosley is provided with walls and doors of three and three and a half inch thickness and filled with Dry Zero, said to be the most effective and most expensive insulation material available.

Mechanically, the unit is pronounced to be the latest word in electric refrigeration construction. Compact, simple and sturdy, the motor, compressor and condenser units are suspended on four springs thus providing for practically complete elimination of vibration.

(Continued on page 34)

#### RIGHT:

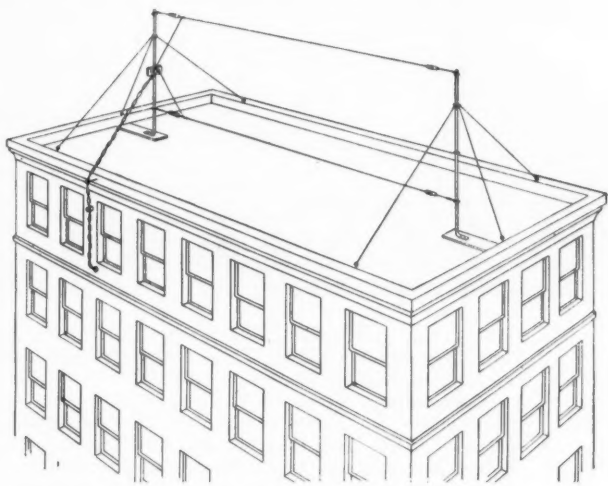
Crosley's new electric refrigerator heralds the advent of quality low-priced refrigeration. The walls and doors are 3 $\frac{1}{2}$ " thick and filled with Dry Zero, said to be the most effective and most expensive insulation material available.



# Taking a Whack at Noise

By P. S. LUCAS

TEN years ago, when radio was in swaddling clothes, the efficiency of the antenna came in for as much consideration as the salient features of the latest three-tube "blooper." While some home-made radio fabricators bragged that their sets would work with the screen door or the bed spring as an antenna, others climbed upon the roofs of their houses and those of their neighbors, or upon trees, telephone poles or church steeples if handy, and strung well insulated, well designed antennas. And they got results.



*General Motors Antenna Installation No. G. M. 101 . . . a type particularly well adapted for apartments or city dwellings where many electrical disturbances must be considered.*

Today radio receiving sets, designed by highly educated radio engineers, produced in great quantities by up-to-the-minute mechanical processes, and carefully checked and tested by experienced technicians, are many times more sensitive than the finest "blankodyne" for which the early experimenters used to suffer. They are so sensitive that practically any of them will operate without benefit of antenna or ground, screen door or curtain rod. Therefore their owners, usually at the short sighted advice of the dealer who realizes that the sale of the set is made easier by stressing the fact that an aerial is not needed, satisfy themselves by throwing a wire out the window or under the rug, or tacking it around the molding. If the set hisses and spits and insists upon reenacting the battle of the Marne they either condemn the manufacturer or the dealer, or broad-mindedly accept the entertainment disrupting racket as the necessary evil; the inevitable act of fate to keep the product of human hands from attaining perfection.

It is true that electrical interference—man made "static"—is a problem that cannot be solved by the wave of a magician's wand. But great strides have been made in overcoming its effectiveness, and any man, woman or child who appreciates the value his, her or its radio holds for him, can at comparatively small expense eliminate a lot of the racket that destroys the pleasurable qualities of radio entertainment.

A good antenna "upon the roof" is a start. A shielded lead-in from same works wonders. While the cost of the latter type of antenna usually runs around fifteen or twenty dollars the difference is comparable to running the family car on tires or on its rims. The latest offering to the cause of eliminating, or minimizing, radio interference is the new

antenna system designed by General Motors engineers.

Briefly this system consists of an antenna and a counterpoise similar to the system employed by short wave transmitting stations. The two wires must be at least thirty-five feet long—longer if possible. They must be cut to exactly the same length, and the leads to where they join together must be of equal length. This is very important. The wires may be mounted vertically, one above the other, or at an angle, but the top one, or aerial, must be at least ten feet higher above the ground than the lower one, or counterpoise. This is a measurement of vertical distance. The counterpoise wire should be at least three feet away from the roof or other material objects that might interfere with its efficiency.

The two leads are brought together and taken to the receiving set via a twisted pair—ordinary twisted fixture wire. The twisting of the wires gives a transposition effect and keeps the lead-in from picking up electrical charges, just as the grounded shield blocks the pick-up ability of the shielded lead-in antenna.

At the receiving set a coupling device is installed and the antenna is complete, as far as average requirements go. It, however, the interference is very bad, or if it is an apartment house and several sets are to be used off the same antenna, a master coupling device should be made fast to the pole at the junction of the antenna and counterpoise and connected as shown in the illustration. With this coupler in the system most users of the G-M antenna insist that at least 75 per cent of the noise is eliminated, even in the worst locations. As Andy would say: "Ain't dat sompin'?" To the radio user; to the service man who gets the job of rigging; to the dealer who wants his customer's esteem; it is "sompin'." It is "sompin'," also, to know that with one master coupler and one set coupler for each radio this system can be used to supply as many as twenty-five receiving sets. When the cost of the system is compared to that of existing apartment house antenna rigs many dealers will dance a jig.

Dealers and servicemen who want technical details and advice for installing antennas of this type can get a booklet entitled "Modern Antenna Installation" from the General Motors distributors. It is the editor's opinion that this G-M antenna will do a lot to make radio more entertaining.



*General Motors Radio Antenna Installation No. G. M. 101-A . . . developed to give utmost efficiency of radio reception in private homes of this general type and design.*



# FADA Wireless IRON



## AUTOMATIC NEW - FAST - CONVENIENT

**Wireless**—There is no electric cord attached to the iron itself to wear out, get in the way or require replacement. No longer need you bother with broken connections. No dusty cord to drag across, wrinkle or soil surfaces. No cord to prevent the completely free movement of the iron itself. The FADA Wireless Iron is all that the name implies and does away with the greatest inconvenience of ordinary electric irons.

**Speedy and Efficient**—The FADA Wireless Iron will stay hot even when used by the fastest operators in ironing the heaviest, wettest pieces and is just as ideal for light work, too.

**Economical**—Designed for fast, easy work, it is natural that the FADA Wireless Iron is economical to operate—further, its thermostatic control prevents overheating or the continuous current drain of wired electric irons.

**Convenient**—The many conveniences of having an electric iron with no cord attached to the iron will be instantly apparent to everyone who has ever used an electric iron.

**Quick Heating**—FADA Wireless Iron is equipped with a special quick heating element and is ready to use almost as soon as it is placed on the stand. The stand, of course, is connected to any convenient electric outlet.

**Holds Heat**—Special precautions in the design and manufacture of the FADA Wireless Iron result in its holding its heat longer than usual and as every woman knows this is a great convenience. An iron that cools too quickly is a constant nuisance and slows up the work.

**Fully Automatic**—The FADA Wireless Iron cannot overheat because of the automatic thermostat in the iron. When the iron becomes too hot the automatic thermostat control cuts off the current and when the iron cools below the proper temperature the thermostat control turns the

current on again. FADA Wireless Iron requires no adjustment of any kind and has no switches to bother with.

**Chromium Finish**—Rustless, shiny and smooth. Same finish that is used on the exposed metal parts of the highest priced automobiles. Attractive, graceful design with rounded corners to prevent tearing fine clothes.

**Cool Handle**—A new design bakelite handle with heat insulating inside core provides an unusually cool handle. The hand cannot come into contact with the hot handle supports. The handle locks over the end supports and cannot twist in the hand.

**How It Works**—The FADA Wireless Iron is provided with a special stand and this stand is connected to any ordinary outlet. When the iron is placed on the stand in contact position it is quickly heated and ready for use. Each time the iron is replaced on the stand it again draws heat as required while preparing work to be done. Even when on the stand the iron draws current only part of the time as needed instead of continuously. The heating element is inside the iron itself just as in wired irons. There is no current at all being consumed when the iron is not on its stand.

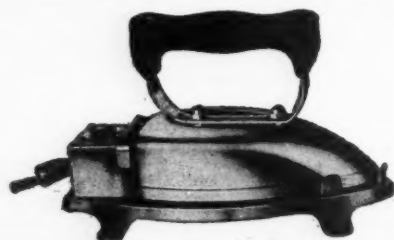
**Three Year Guarantee**—The FADA Wireless Iron is fully guaranteed for three years against defective material or workmanship and should last a lifetime of ordinary use in the home.

Weight 6 lbs.—1100 watts—105-130 volts 25-60 cycles for use on AC lines only. Model 10-A-6. \$8.90.

*Manufactured by*

F. A. D. ANDREA, INC., Long Island City, N. Y.

*Makers of the Famous FADA Radios Since  
Broadcasting Began*



Form No. 5214  
Printed in U.S.A.

## ALSO A NEW LINE OF FADA REFRIGERATORS

*View of Iron on Stand—cord is attached to stand—not iron*



**W**ORTHY and well-qualified radio sales and service men will be sought by manufacturers, jobbers and dealers when

# CATHODE RAY TELEVISION RECEIVERS

come out of the laboratory. It won't be long now. This equipment incorporates new principles and ideas that can readily be grasped by men who are familiar with radio. They are the logical men to sell and service this marvelous new means for entertainment in the home.

**Y**OU can qualify yourself so as to be ready to inspire the buyer with confidence in what you say and do when he asks the questions that are as inevitable as were those during the boom days of radio ten years ago...

**IF** you understand:

The underlying theories and their practical application in producing optical images and in controlling high frequency current; the action of vacuum tubes in amplifying the exceedingly small current output from photoelectric cells and cathode ray tubes; the methods used in electrical scanning and synchronizing; the nature of a television signal and the mode of its transmission.

**Y**OU can learn these subjects thoroughly by taking a six year college course in communication engineering.

**OR**

You can learn enough to more than "get by" if you master my thirty personal lessons on Television Engineering.

**A** HIGH school student who has played with radio circuits can readily grasp 99% of what I say. He must know the difference between the sine and cosine of an angle and how to read a simple circuit diagram. Otherwise twice as many lessons would be needed. The course has been prepared in co-operation with the engineers who have developed the cathode ray receiver and contains just the information that they consider essential to an understanding of how and why it operates. Each lesson is accompanied by a problem sheet which must be answered before the next lesson is given. I personally correct any mistakes in the answers so as to insure that you understand each step in the development of the subject. The price is \$5.00 for five lessons. \$30.00 for thirty lessons, payable in \$5.00 installments in advance when the preceding set of lessons is finished. ARTHUR H. HALLORAN, Television Consultant and Lecturer on Television for Extension Division, University of California. 430 Pacific Building, San Francisco, California.

## ENROLLMENT BLANK

R2

**ARTHUR H. HALLORAN,  
430 Pacific Bldg., San Francisco, Calif.**

Enclosed is \$5.00 for which enroll me as a student in your course on Television Engineering. I understand simple radio principles and trigonometry and expect to complete the course.

NAME..... STREET AND NO. ....  
CITY..... STATE.....

Tell them you saw it in RADIO

## New Tube Announced at Chicago Show

A NEW DEVELOPMENT, known as the Wunderlich System, which gives promise of being widely used in the design of 1932 radio receivers, was described today by Norman E. Wunderlich, the inventor, to radio engineers assembled in Chicago for the Radio Show.

This System is considered by the country's leading engineers as a remarkable development that will give the American public greatly improved radio reception. It consists of a special, yet simple circuit and a new tube that serves the threefold purpose of detection, amplification and automatic volume control. This tube performs these three functions with better results than when employing three individual tubes.

Mr. Wunderlich also announced that arrangements had been completed with the Arcturus Radio Tube Company for the manufacture and production of this new tube.

Preliminary tests and measurements by two nationally recognized laboratories have confirmed all of the claims and advantages of this new tube. Private demonstrations of this tube and system in radio receivers during the Radio Show amazed listeners with its exceptional quality and over-all performance.

The Wunderlich tube is the most versatile tube that has yet been developed. It is considerably more sensitive than present-day tubes and is peculiarly more sensitive to weak signals than to strong ones. This action has tendency to adjust the circuit to meet the best requirements for perfect reception, and the system provides automatic sensitivity control, automatic selectivity control and automatic fidelity control.

### \$10,000.00 Bid for Perryman

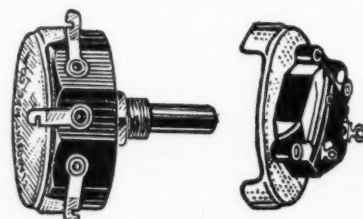
William I. Rosenfeld has made an offer to purchase all of the assets of Perryman Electric Co., Inc., exclusive of accounts receivable and cash, for the sum of Ten Thousand (\$10,000) Dollars, but including real estate, subject to encumbrances. A certified check for that amount has been deposited with the Receivers.

### Howard Is President of Waltham

Instead of being owner of the Waltham Radio Company, Los Angeles, as reported last month, Harry E. Howard is president of the Waltham Radio Corp. Originally formed as his own company, the organization several months ago was incorporated with Mr. Howard as president.

## CLAROSTAT

### AD-A-SWITCH VOLUME CONTROLS



As a convenience to jobbers and service-men, Clarostat announces the new Ad-A-Switch line of wire wound volume controls.

The Ad-A-Switch arrangement enables one to simplify line-up of his stock on Volume Controls to a point where duplication of resistance on controls carried in stock will no longer be necessary. Any Ad-A-Switch volume control may be converted at once into a complete unit with switch by replacing the usual dust cap with the special snap-on switch.

These and other Clarostat aids to the industry are fully described together with very complete circuit data in the 1932 edition of the Clarostat Control Handbook and Catalog which will be sent without charge.

**Clarostat Mfg. Co., Inc.**

285 North Sixth St.

Brooklyn, N. Y.

# EL REY

## The King

6 TUBE  
SUPER  
**\$18.75**  
NET

4 TUBE  
T. R. F.  
**\$11.95**  
NET

### EL REY AUTO SET

Complete, including Batteries **\$24.75**  
(Remote Control \$5.00 Extra) NET



5 TUBE EL-REY  
T. R. F. RECEIVER **\$14.95**  
NET PRICE TO DEALERS

The entire El Rey line . . . midjets, consoles, auto sets and commercial chassis . . . carries an unconditional three months guarantee. El Rey products include Standard tubes, Lansing speakers and the best in all accessories and parts.

PRICES QUOTED ARE TO DEALERS ONLY - - CASH WITH ORDER

**EL REY MANUFACTURING CO.**

8406 1/2 SO. BROADWAY - LOS ANGELES, CALIF., U. S. A.

## SPECIAL OFFER

"CONQUEROR OF SPACE"

BIOGRAPHY OF

DR. LEE DE FOREST

"Father of Radio"

Former Advertised Price \$3.00

Now Only \$1.50

"Conqueror of Space" contains the story of the invention of the first Audion (three-electrode vacuum tube) and reveals the tactics employed by large corporations in dealing with the man whose inventions have made radio possible. A remarkable book about a remarkable man. Send for a copy TODAY.

• •

CQ PUBLISHING CO.

1725 Bedford Road San Marino, Calif.

## KAUER OF CECO PREDICTS BUSINESS REVIVAL

### Forecast of 1932 Radio Business

BUSINESS generally should rise to increased activity during the spring months of 1932. Thus will begin the recovery which we have been expecting for some months past. The general trend throughout the year will be in the upward direction. In the fall months a faster upturn of more than normal proportions can be expected in all confidence.

Intensive national interest in the forthcoming political elections is certain to reflect itself in an increased demand for radio tubes. The physical volume of replacement tube sales is expected to be the greatest in the history of radio. It is doubtful, however, that wholesalers and retailers will witness increased profits from volume in low priced, low profit merchandise. There will be opportunities for progressive merchants to secure both volume and satisfactory profits from newly designed products which some manufacturers are about to place on the market.

Good business will return in 1932 only to those manufacturers and merchants, in the radio industry, who apply hard work and intelligent efforts to their activities.

(Signed) ERNEST KAUER,  
President, Ceco Manufacturing Co., Inc.

## Open Season for Shunto Birds in 1932

THE shunto bird belongs to the group SOURLOPSIDA, signify- that everything about it is wrong and lopsided. It is hatched by a buzzard which has had a misadventure with a raven. It has a beak like an unpaid bill, scandal-tipped wings, tail like the rear end of an old delivery truck, and feathers like shingles on a leaky roof. It roosts on aerials and other dead-ended wires around radio stores.

The shunto squawks when hurt, sings like a Colorado canary, and croaks all the time. It feeds on offal and carrion. A blind man can recognize it by its stench.

Its eggs are large and round, brass yellow in color and joined together, always being three in number. Your uncle has adopted them as the sign of his profession. The eggs never hatch out, but there are always plenty of squawkers and croakers to maintain the supply of shunto birds.

Its brain is twisted so that it falls down when it wants to fly up and it goes up in the air when it wants to alight. It sees darkness in light, hears discord in harmony, tastes bitterness in sweet, smells badness in sweetness, and feels cold in the sunshine. It fattens on all that is bad and shuns all that is good.

The best way to get rid of these birds is to shock them with a live wire, the liver the better. When thus touched they shrivel into a puff of hot air. The state should pay a bounty for every one that is killed, but would be bankrupt by the bill. So every man has to kill the shunto birds that annoy him. There is no closed season. Look out for this bird.

Tell them you saw it in RADIO

## TO MEN WITH AMBITION



who want to get ahead,  
we offer this radio training



THIS ad is written to you! If you have a spark of ambition, it may be the answer to your search for advancement.

For it tells about RCA Institutes. Radio, as everyone knows, has developed far beyond the point most men believed possible. Its future may be even greater. Would it not be wise for you to get into radio now, thus be ready to capitalize on its future?

RCA Institutes offers you the radio knowledge you need... either at its four big resident schools in New York, Boston, Philadelphia and Chicago or through extension courses for home study. Modern equipment, expert teachers and a wide variety of courses, association with the radio industry's largest research laboratory, are a few of the many advantages you get.

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# TOBE Filterette

## NEW BOOK CONTAINS LATEST INTERFERENCE DATA

### New Edition of "Radio Noises" Double Size of Previous Issues

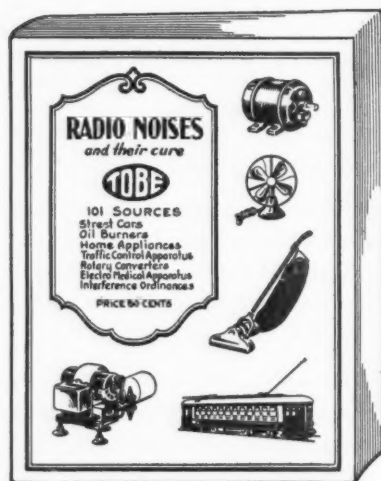
A wealth of hitherto unpublished information on the subject of radio interference and its elimination is contained in the fourth edition of the Filterette manual, "Radio Noises and Their Cure" which is just off the press. This new and greatly enlarged edition, which is more than double the size of previous issues, contains 76 8½"x11" pages crammed with wiring diagrams, photographs, drawings of Filterette installations, and valuable information on the elimination of all types of radio interference. In addition to detailed information on the subjects not covered by previous editions, this book contains the results of further research on apparatus covered in the first three editions.

The application of Filterettes is made clear by 25 wiring diagrams, 40 line drawings, and 52 photographs of actual Filterette installations.

Among the new subjects treated in this edition are street cars, electric incubators, automatic stokers, automobile electrical systems and power lines.

In the complete new chapter on the elimination of interference created by flashing traffic beacons and traffic control apparatus three pages are devoted to photographs, diagrams and descriptive matter covering the use of the newly developed Filterette FS-110. This Filterette is shown in its application to flashing traffic units used with warning beacons on all State highways in Massachusetts, Filterette FS-110 having been adopted as standard by the State Highway Department.

In the chapter on street railway interference are numerous photographs of



Filterettes as applied to street cars of the Manchester (N. H.) Street Railway Company. This chapter also contains complete information on the filterizing of street railway converters and other street railway apparatus which may be causing interference.

Two new Diathermy Filterettes are described in the chapter on electro-medical apparatus, and the correct method of installing these Filterettes is described in detail. Blueprints giving full information for the construction of the high frequency screen used with Diathermy apparatus are also contained in this chapter.

Interference ordinances as approved by the Legal Department of the Federal Radio Commission are contained in a special chapter devoted to the legal aspect of the radio interference problem. Ordinances already in effect in various municipalities are also quoted, and information relating to the enforcement methods which have been found satisfactory is supplied.

The use of a line Filterette to overcome the tuning effect of power or lighting circuits is described and analysis is made of the reasons for variation in sig-

nal volume when electric wiring circuits are energized or cut off.

Under the heading "Sign Flashers" two new Filterettes which have been developed for application to single and double circuit sign flashers are described. The method of combining single circuit, double circuit and four-circuit sign flasher Filterettes to suppress the interference from every possible flasher combination is outlined.

This book contains the most complete treatment of the radio interference problem which has ever been published, and it will be of inestimable value to radio dealers, who must be familiar with the numerous sources of radio interference and the methods to be followed in overcoming the interference in order that satisfied customers may obtain the desired results from their receivers.

The price of the fourth edition of "Radio Noises and Their Cure" in single copies is 50c. Dealers desiring to obtain these books for distribution to their customers may obtain them in lots of 25 at a reduced price.

## NEW SALES PLAN INSURES DEALERS' PROFITS

### Qualified Dealers May Obtain Filterette Service Station Appointments

A new plan whereby qualified radio service men may profit by the growing public interest in radio interference has been evolved by the Sales and Engineering Departments of the Tobe Deutschmann Corporation, Filterette Division. The purpose of this plan is to enable energetic radio dealers to build on the foundation laid by the pioneers in radio interference elimination and to utilize the knowledge of radio interference which has been gained through years of research.

ADVERTISEMENT

In order that this knowledge may be utilized to the fullest degree, the entire resources of the Tobe Filterette Laboratories are placed at the disposal of all service organizations qualifying for appointment as Authorized Filterette Service Stations. This co-operation enables service men to submit any new or unusual interference problem to Filterette engineers for solution.

In addition to this co-operation in the solution of new problems, the results of past research are made available to Authorized Filterette Service Stations in the Tobe Interference Course. This course, consisting of 50 lessons, contains complete information on the theory and practice of radio interference elimination by use of Tobe Filterettes. It contains wiring diagrams of fundamental Filterette circuits, electrical apparatus causing radio interference, and Filterette applications. Drawings and photographs of actual Filterette installations illustrate the text, making clear the filterizing of any apparatus. All types of electrical equipment on which laboratory or field experimentation has been conducted are described in this text. A few of the lesson subjects are:

- Fundamental Filterette Circuits.
- Use of capacitive Filterettes.
- Use of Inductive-Capacitive Filterettes.
- How to use the Filterette Analyzer.
- How to filterize oil burners.
- Filterizing street cars.
- Electro-medical apparatus.
- Power line interference.

Subscribers to the Tobe Interference Course also receive monthly bulletins containing up-to-the-minute news of interference eliminating activities and information on the filterizing of newly discovered interfering apparatus.

In order that the engineering information, contained in the Interference Course and monthly bulletins, may be of maximum value to Authorized Filterette Service Stations a carefully devised plan for a nation-wide advertising and sales campaign has been mapped out. Valuable material, for window display and newspaper advertising, is supplied

to all those who co-operate in this campaign. These sales helps are designed to arouse public interest and curiosity regarding radio interference and to show the broadcast listener the connection between radio noises and the apparatus responsible for disturbances to radio reception.

In addition to obtaining the business stimulated by local and national advertising, Authorized Filterette Service Stations are furnished leads from the interference inquiries which are received daily from leading radio and electrical manu-

facturers. All persons requesting assistance are referred directly to the local Filterette Service Station, which is required to render immediate service.

Every Authorized Filterette Service Station is provided with an identification card and a radio interference inspector's badge to be used by employees who may require means of establishing their identity.

For complete information as to the requirements for obtaining Filterette Service Station appointment, write for Bulletin 8619-B.

## AUTOMOBILE HEATERS CAUSE INTERFERENCE

### Automobile Radio Affected by Accessory

A new source of radio interference in automobiles has been discovered by car owners who have installed hot air or hot water heaters of the type employing a small motor driven fan to provide circulation of heat. The motor used is generally a series wound unit connected to the electrical system of the car with long unshielded leads. The motor and its connecting leads are often located

In order to overcome the interference created by the fan motor of either a hot water or a hot air heater, a Filterette JA should be used. This Filterette should be mounted on the frame of the fan motor, as shown in Figure 1. Filterette JA is provided with three flexible leads. The two leads which are brought out of one end of the Filterette should be connected to the two leads which are brought out of the fan motor housing. This connection should be made as close as possible to the motor, and the Filterette leads should be kept as short as possible. The single lead which is brought out of the opposite end of the Filterette should be connected to a carefully cleaned part of the fan motor frame.

In the installation of Filterette JA on the fan motor of an automobile heater, it is essential that the Filterette return connection be made to the fan motor frame. The reason for this is that in the mounting of the fan motor it is common practice to provide a cork gasket between the motor frame and the heater frame. This layer of cork acts as an insulator, and makes it essential that the Filterette return wire be connected to the fan motor frame. When Filterette JA is installed in this way, the interference created by the fan motor is confined to its source, and is thus kept from affecting the operation of the radio receiver installed in the automobile.

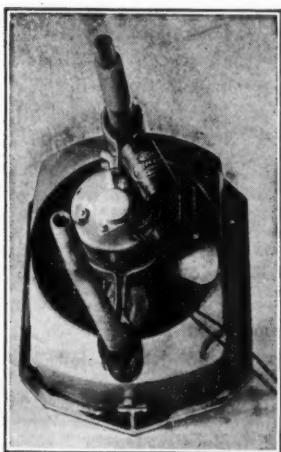


Figure 1

within a few inches of the receiver or the antenna system, with the result that the interference created by the fan motor is picked up by the receiver, often being of such intensity that desired broadcast signals are submerged by the interference.

# TOBE DEUTSCHMANN CORPORATION

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115 Circuit Diagrams of Commercial Receivers and Power Supplies supplementing the diagrams in John F. Rider's "Trouble Shooter's Manual." These schematic diagrams of factory-made receivers, giving the manufacturer's name and model number on each diagram, include the MOST IMPORTANT SCREEN GRID RECEIVERS.

The 115 diagrams, each in black and white, on sheets 3 1/8 x 11 inches, punched with three standard holes for loose-leaf binding, constitute a supplement that must be obtained by all possessors of "Trouble Shooter's Manual," to make the manual complete. We guarantee no duplication of the diagrams that appear in the "Manual." Circuits include Bosch 54 D. C. screen grid; Balkite Model F, Crosley 20, 21, 22 screen grid; Eveready series, 50 screen grid; ERLS 224 A. C. screen grid; Peerless Electrostatic series; Philco 76 screen grid.

Subscribe for Radio World for 3 months at the regular subscription rate of \$1.50, and have these diagrams delivered to you FREE!

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To do your radio work properly you need meters. Here is your opportunity to get them at no extra cost. See the list of nine meters below. Heretofore we have offered the choice of any one of these meters free with an 8-weeks subscription for RADIO WORLD, at \$1, the regular price for such subscription. Now we extend this offer. For the first time you are permitted to obtain any one or more or all of these meters free, by sending in \$1 for 8-weeks' subscription, entitling you to one meter; \$2 for 16 weeks, entitling you to two meters; \$3 for 26 weeks, \$6 for 52 weeks, entitling you to six meters. Return coupon with remittance, and check off desired meters in squares below.

RADIO WORLD,  
145 West 45th Street, New York, N. Y.  
(Just East of Broadway)

Enclosed please find \$..... for .....weeks subscription for RADIO WORLD and please send as free premium the meters checked off below.

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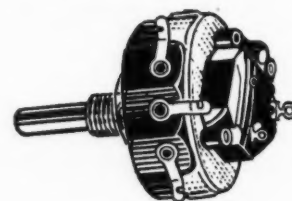
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## CLAROSTAT Ad-A-Switch CONTROL



AS A FURTHER convenience to jobbers and service men, Clarostat now has available a new Ad-A-Switch line of Volume Controls. These versatile controls are made up in the general style and design of the now famous genuine Wire Wound Potentiometers, and are obtainable in any taper or resistance up to 50,000 ohms. They have the added feature that a switch may be slipped on any of them without the use of tools.

The Ad-A-Switch arrangement enables one to simplify line-up of his stock on Volume Controls to a point where duplication of resistance on controls carried in stock will no longer be necessary. Any Ad-A-Switch Volume Control without switch can be converted at will into a complete unit with switch by replacing the usual dust cap with the special snap-on switch.

These switches are the compact bakelite type, built into the metal cover so as to take up very little room. They are Underwriters' approved for three amperes, 110 volts. The Ad-A-Switch Volume Controls are more completely described on page 7 of the new 1932 Clarostat Control Handbook and Catalog which also covers the whole line of Clarostat devices for the radio, sound and electrical industries.

A particular feature of this 32-page Handbook is that a special section is devoted to real helpful information on circuits and applications of resistance control devices. A copy may be obtained without charge by writing to the Clarostat Mfg. Co., Inc., 285 North Sixth Street, Brooklyn, N. Y. In writing please mention this magazine.

## Crosley Refrigerator

(Continued from page 26)

The compressor is of a slow speed reciprocating type of long life and is simplified in design through possessing a minimum of moving parts and through the elimination of all troublesome rings which usually result in higher friction load. All movable parts are lubricated in a bath of oil.

The unit is powered by means of a one-eighth horsepower repulsion-induction motor which holds a three year's supply of oil. The motor operates practically noiselessly and is especially constructed to cause no radio interference whatever.

Production on the Crosley refrigerator, which is now under way, will be in full swing shortly and stocks of the new units will soon be in the hands of the 18,000 Crosley dealers scattered throughout the United States and Canada.

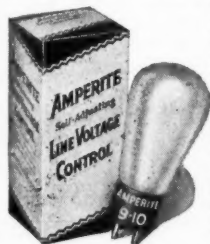


# RADIO BUYERS' GUIDE

Advertisements for these columns should reach the publisher before March 5th for insertion in the March issue.

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installing a real regulating line voltage control—AMPERITE. Improving the set in this way builds confidence. We suggest you mail the manufacturer \$1.62 for a sample complete with socket and sales helps. No postage charge.

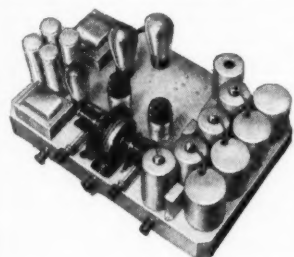


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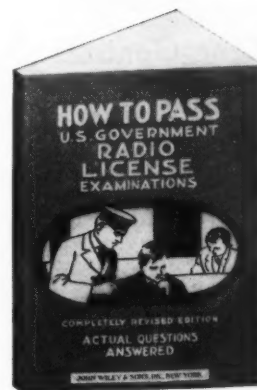
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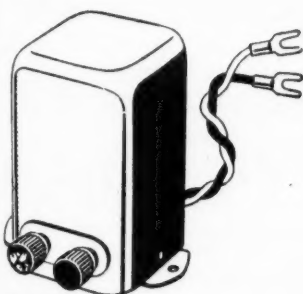
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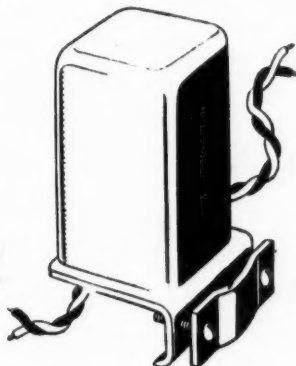
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Model 1050  
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Model 1053  
Master Coupler  
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which greatly improve reception and permit operating 25 or more receiving sets with a single antenna.

● The new General Motors Radio Model 1050 Antenna Coupler can be used with any installation. It greatly improves reception by eliminating interference; it allows long lead-ins without reducing sensitivity or selectivity. When there are two or more receivers in the same dwelling it saves much trouble and expense by permitting multiple reception from a single antenna. Each receiver takes a coupler—installed in the speaker compartment—and, where two or more receivers are used, the model 1053 Master Coupler is connected into the lead-in wire or wires, one Master Coupler with every 50 receivers. The New General Motors Radio Antenna Couplers are available through all General Motors Radio distributors and dealers.

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Tell them you saw it in RADIO



## Clean Those Contacts

A twist of the wrist—and instantly the "PRONGETTE" cleans dirty tube prongs. Reverse the steel reamer and instantly you clean those hard-to-get-at places in tube sockets . . . cleaning exactly where cleaning is needed. Every dealer . . . every service man . . . every engineer needs this new tube and socket cleaning tool. Insulated handle. Case-hardened steel reamers. Fits in your vest pocket. Carry it with you always. Sent postpaid anywhere upon receipt of \$1.50. Agents wanted.

**\$1.50**

**BRADLEY RADIO CO.**  
288 Golden Gate Ave. San Francisco

## HOTEL NORMANDIE

provides the maximum of comfort at reasonable cost. Located just outside the congested district of Los Angeles, yet close to the best shops, theaters and churches, the NORMANDIE offers every advantage you desire in your selection of a temporary or permanent home.

### Rates

Room with Bath, single, \$1.50 per day  
Room with Bath, double, \$4.00 per day  
Monthly Rates on Application

The cuisine, excellent service and reasonable rates in the COFFEE SHOP AND CAFE combine to make your stay a pleasant one.  
(George in Connection)

CORNER SIXTH & NORMANDIE  
**LOS ANGELES**



## The ARCADY

Rising twelve stories above the exclusive Wilshire district, overlooking the beauties of Westlake and Lafayette Parks, the Arcady offers every comfort and convenience for the traveler

**LOS ANGELES**  
WILSHIRE at RAMPART



## SHORT WAVE SET

with  
Built-in Power Supply

**\$24.50**

Net Price  
with  
4 Tubes.

Order  
a Sample  
NOW

"THE WORLD RANGER"  
... a 4-tube complete short wave set in a midget cabinet . . . the latest in short wave sets. Marvelous reception from stations all over the world.

**S. F. RADIO EXCHANGE**  
1284 Market Street  
San Francisco Calif.

## HEATHMAN HOTELS 530 ROOMS

Best location in Portland in the heart of the shopping and theater districts and facing park land. Convenient garage just across the street.

### RATES

Single room with bath \$2.50 and up  
Double room with bath \$3.50 and up

Concerts twice daily on 125,000 organ.  
HARRY E. HEATHMAN  
Manager

**Portland, Oregon**

HOTEL WASHINGTON

## HOTEL WASHINGTON

**200 ROOMS**  
150 ROOMS WITH PRIVATE BATH

Centrally located.  
Convenient to  
Theatres & Shops

### RATES

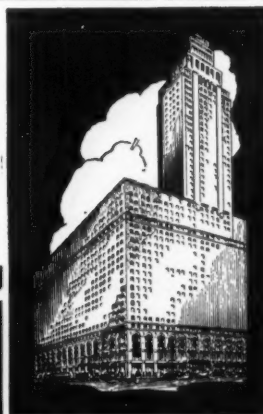
\$1.50 to \$3.00 per day.

PUT YOUR CAR IN  
OUR OWN FIRE-PROOF  
GARAGE



GRANT AVENUE  
AT BUSH STREET

**SAN FRANCISCO**



A GUEST at the Morrison enjoys all the luxuries that only a hotel of premier standing can offer. Yet rates are remarkably low—\$3.00 up—because sub-rentals pay all the ground rent. The saving is passed on to guests.

Every room in the Morrison Hotel is an outside room, with bath, circulating ice water, bed-head reading lamp and Servidor. A housekeeper is stationed on each floor.

The Morrison is the World's Tallest Hotel—46 Stories High.

Nearest Hotel in the City to stores, Offices, Theatres and Railroad Stations.

## CHICAGO'S MORRISON HOTEL

Corner Madison and Clark Streets

Leonard Hicks, Managing Director

**2500 ROOMS**  
**\$3.00 Up**

Tell them you saw it in RADIO



**A New Product That Means  
Added Repair Dollars**

ALUMAWELD is applied with an ordinary soldering iron. It will repair any metal in common use today.



# ALUMAWELD ..... A NEW ALL METAL Solder for Radio Work

THE elimination of squeaks and howls in short wave sets has been a source of considerable annoyance to the short wave enthusiast. These sets are usually encased in aluminum, and if the metal is not properly joined, will cause disturbance. Rivets and other forms of connection, while extensively used, do not seem to give the desired results.

After extensive research, the problem has finally been solved, through the development of a new aluminum and all metal solder called Alumaweld. This solder is used on the aluminum radio cabinet exactly as ordinary solder is used on tin. It fuses or welds the two sheets of aluminum together, making a permanent bond and satisfactorily eliminating disturbance.

Alumaweld is claimed to be the first successful aluminum and all metal solder. Its difference from other solders is that instead of simply joining the surfaces of the two metals, it breaks down the structure of the metal through chemical reaction and fuses the two pieces into a single piece. It is because of this, as well as the neutral character of the solder, that electrolysis between the solder and the metal is entirely eliminated.

In radio work, besides the repair of aluminum cabinets, aluminum shields, housings, etc., the solder can be used to join together any two dissimilar metals. Cast iron or steel may be fused to sheet aluminum. Or copper and pot metal joined together. Any metal in common use today, whether it is cast or sheet, can be soldered with this material. Furthermore, the union will be permanent, rust proof and non corrosive. There is no acid in either Alumaweld solder or flux, so it is entirely applicable to all forms of radio work.

Extensive tests have been made with this new solder and the observation made that the field of application is practically unlimited. Anyone, regardless of experience, can use it and get good results. It is applied with an ordinary solder-

ing iron or blow torch, without preheating the metal. Alumaweld melts at 370 degrees, so no great amount of heat is required to perform the job. Once melted, however, the solder requires a considerably higher temperature to melt a second time.

Alumaweld has a tensile strength of 12,000 pounds, which is over ten times that of ordinary solder. It is quite ductile,



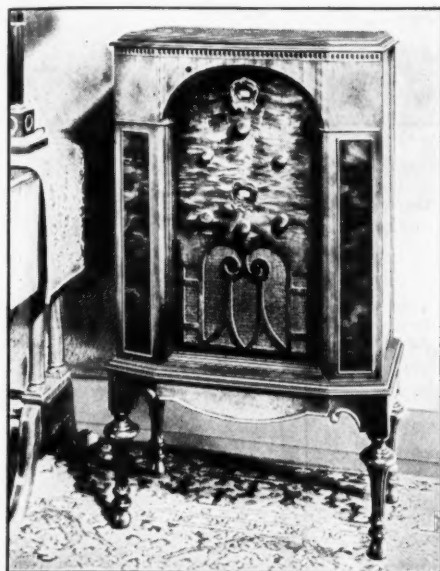
machines easily, and will take a nice polish over which chromium plating or any other kind of plating can be applied.

Soldering with Alumaweld is expected to replace welding on larger metal work. Although aluminum can be welded, it is necessary to tear down the set, preheat the aluminum to a high temperature, weld, and then allow to cool before building the set again. This process is laborious and costly, with the added disadvantage that the metal may crack during preheating and cooling. With Alumaweld, the repair is made without tearing down the set, the entire job including cleaning and applying the solder, taking only from 10 to 12 minutes.

Knowing that the readers of this publication are interested in new and improved products, Radio has arranged with the manufacturers of Alumaweld for the distribution of a number of test samples to readers of this magazine. Those interested, should

**Write to the Allied Research Laboratories at Glendale,  
California, asking for a Free Sample Kit of Alumaweld.**

# 2 combined SHORT-WAVE and STANDARD BROADCAST CROSLEY SUPERHETERODYNES



**\$77<sup>50</sup>**  
COMPLETE WITH  
7 TUBES

## The Crosley DISCOVERER

In the low price field there is The DISCOVERER, a seven-tube combination short-wave and standard broadcast superheterodyne for \$77.50. Foreign stations, police calls, and other short wave broadcasts, and the usual broadcast programs, can be brought in on this

remarkable radio receiver. The wave length change is effected by means of a panel switch — no coils to change. The cabinet is of unusual beauty. Your Crosley Distributor will supply you with full details. Dimensions: 40" high, 23 $\frac{3}{4}$ " wide, 11 $\frac{1}{2}$ " deep.

**Other Crosley Radio Receivers Represent  
the Greatest Values in Radio Today  
... at Lowest Possible Prices**

The radio-buying public has compared Crosley feature by feature and price for price with other radio receivers and has expressed its approval in terms of greater sales.

Consequently Crosley radio receivers are in demand today. The Crosley LITLFELLA at \$36.36 and the Crosley BIGFELLA at \$48.48, 5-tube Pentode Output, Variable Mu, Dynamic Speaker Superheterodyne are unusual radio receivers.

The Crosley 8-tube Push-Pull Pentode Output, Variable Mu, Dynamic Speaker Superheterodyne series, in table and console and Grandfather clock models priced from \$49.75 to \$95.00 are the talk of the radio world.

The Crosley 10-tube Push-Pull Pentode Output, Automatic Volume Control, Meter Tuning, Superheterodyne table model at \$69.50 and the six-legged console model at \$99.50 are outstanding values. Learn more about Crosley from your Crosley Distributor.

(Montana, Wyoming, Colorado, New Mexico and west, prices slightly higher.)

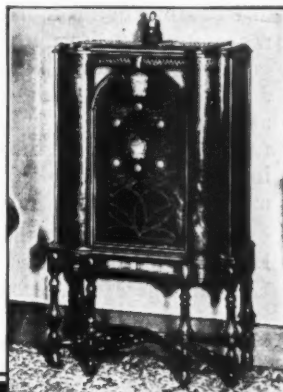
## THE CROSLEY RADIO CORPORATION

Powel Crosley, Jr., President

CINCINNATI

Home of "the Nation's Station"—WLW

NOW, the thrill of romantic and daring adventure can be enjoyed in the midst of the family circle . . . with the new Crosley 7-tube or 12-tube combined short-wave and standard broadcast superheterodyne radio receivers. Foreign stations, mail and transport planes talking to airports, police calls . . . and many other interesting and unusual things which travel the short-wave bands can be easily brought in, when the atmospheric conditions are right. The wave length change is effected by means of a panel switch . . . no coils to change. The completeness of these Crosley superheterodyne short-wave and standard broadcast receivers, make them, we believe, the most sensitive, best performing and most up-to-date sets ever offered at any price for home reception. Get in touch with your Crosley Distributor to learn more about these splendid, super-performing and low-priced radio receivers.



**\$119<sup>50</sup>**  
COMPLETE WITH  
12 TUBES

## The Crosley ADVENTURER

In addition to being the last word in radio engineering, the Crosley ADVENTURER is the very latest thing in cabinet design. The front panel is of beautifully figured stump walnut veneer arched with burl maple in two tone effect and highlighted. Curved pilasters of selected stump walnut veneer. American black walnut

veneer top and sides. Six turned and fluted legs. The apron is panelled with zebra wood. The market for this sensational radio receiver is wide open. Considering the value received, it sells at a remarkably low price. Dimensions: 44" high, 26 $\frac{1}{2}$ " wide, 14" deep.

YOU'RE THERE WITH A CROSLEY  
**CROSLEY RADIO**



# Do You Rate This RESALE BUSINESS?

Initial equipment tube business in 1931 receivers will be reflected in replacement business in 1932. Are you one of the thousands of Dealers who are cashing in and will cash in on the huge replacement market that Arcturus is building through its initial equipment business?

Today—Arcturus Blue Tubes are used as standard equipment by more set manufacturers and in more sets than any other tube! Today—Arcturus is building for you a bigger replacement market than any other tube! Today—millions of radio listeners are becoming 'blue' tube conscious! Today—Arcturus Blue Tubes are the fastest-selling, profit-building tubes on the market, and tomorrow, will be the most profitable tube franchise.

The long list of set manufacturers using Arcturus Blue Tubes reads like a 'who's who in the industry.' Critical engineers for exacting and leading set manufacturers imposed the most rigid comparative tests... measured the tonal qualities with precise instruments...checked for rugged construction...tested for serviceable life...then made their decision. Arcturus...the blue tube...won with colors flying!

And...also endorsing Arcturus quality, are manufacturers and retailers in 64 foreign countries throughout the world who use and sell Arcturus Blue Tubes—exclusively.

Use the tube that is endorsed and used by the leaders of the radio industry...Arcturus Blue Tubes. Get lined up for this huge replacement market. Feature Arcturus—and watch your sales jump. If you don't handle Arcturus Tubes, ask your Jobber, or us, for the details of this valuable franchise.

## WHO'S WHO in the Industry or Some of the Manufacturers Who Used Arcturus Tubes in 1931

Atwater Kent Manufacturing Co.  
Columbia Phonograph Co.  
Crosley Radio Company  
Stewart Warner Corporation  
Transformer Corp. of America  
Wurlitzer Mfg. Co.  
Zenith Radio Corp.  
Advance Electric Company  
Air-King Products, Inc.  
Anderson Manufacturing Co.  
Audiola Radio Company  
Automatic Musical Instrument Co.  
Balkeitt Radio Company  
Bulova Watch Company  
Davidson-Haynes Mfg. Co.  
Detrola Manufacturing Co.  
Dubilier Clock Company  
Eastern Coil Co., Inc.  
Echophone Radio Mfg. Co.  
Elgin Radio & Television Co.  
Galvin Manufacturing Corp.  
General Television & Radio Corp.  
Halsen Radio Mfg. Co.  
Hoodwin Company  
Howard Radio Company  
Insuline Corp. of America  
Jackson-Bell Company  
Jesse French & Sons Piano Co.  
Kendis Radio Company  
Lincoln Radio Corporation  
Los Angeles Radio Mfg. Co.  
Master Radio Mfg. Company  
Midwest Radio Corporation  
Mission-Bell Manufacturing Co.  
Mutual Manufacturing Co.  
Pacific Radio Mfg. Company  
Patterson Radio Mfg. Company  
Perry Products Company  
Peerless Manufacturing Co.  
Powell Manufacturing Co.  
Remler Company, Ltd.  
Revere Radio Corporation  
Scott Radio Laboratories, Inc.  
Sterling Manufacturing Co.  
Trav-ler Manufacturing Corp.  
Trojan Factories  
United Air Cleaner Corp.  
United Motors Service, Inc.  
Waltham Radio Corporation  
Ware Manufacturing Co.  
Warner Engineering Corp.  
West Coast Radio Company  
Western Coil & Elec. Co.  
Western Radio Mfg. Co.  
Wilcox-Gay Corporation

ARCTURUS RADIO  
TUBE COMPANY  
Newark, N. J.



# ARCTURUS

<sup>2</sup>e BLUE TUBE with the LIFE-LIKE TONE

WESTERN DIVISION: Arcturus Radio Tube Co., 1855 Industrial Street, Los Angeles, Calif.